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Diverging Trends in Self-Employment in Canada

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by
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Abstract

The strong performance of self-employment relative to paid-employment over recent years in Canada has sparked a wide interest in determining the sources and implications of these developments in the economy. Over the 1990-96 period, self-employment grew by 3.3 per cent per annum on average while paid-employment grew by only 0.2 per cent. Of the 511,000 net increase in the total number of people employed over this period, around 387,000 reported themselves as being self-employed (about 75%).

Using Labour Force Survey data, this paper attempts to place these developments in perspective by exploring some of the main features of the aggregate trends in self-employment in the Canadian economy over the 1976-96 period. In particular, it tries to shed some light on the question of whether or not the growth in self-employment in recent years is indicative of new patterns of work arrangements or if it can be explained by more usual circumstances such as the effects of the business cycle. Data are analyzed for the two main sub-classes of self-employment: employers who are self-employed (ESE), and the own-account self-employed (OASE).

We first present an analysis of the aggregate trends in self-employment as well as the ESE and OASE components. Trends in self-employment by detailed occupation and industry groups are then described and analyzed. A shift-share decomposition of the growth in self-employment, by occupation and industry, allows us to estimate what proportion of these trends results from shifts in the composition of employment and what proportion results from changes within the structure of each occupation and industry.

Our analysis shows that growth in self-employment has been remarkably steady over the period 1976-96 and, in particular, there has been no significant increase in growth in this form of employment over recent years. Nonetheless, decomposing the growth in self-employment by occupation and industry reveals that the incidence of self-employment rather than composition has been the major reason for the growth of self-employed workers over the 1984-96 period. The trends toward a knowledge-based economy have contributed to the rise in the proportion of self-employment, but these effects have been largely offset by negative contributions in more traditional vocations such as farming, fishing and forestry where the proportion of self-employment is relatively large.

Our detailed analysis by occupation/industry further shows that self-employment growth rose in a large majority of vocations since the early 1990's while the opposite occurred in paid-employment. Thus, for a large number of occupations/industries, poor opportunities in paid-employment and good opportunities in self-employment encouraged individuals to become self-employed. Moreover, since paid-employment is found to be cyclical and self-employment is not, in periods of weak employment growth, self-employment will comprise an unsustainable proportion of the net overall increase in employment. The current economic recovery should therefore translate into some fall in the share of self-employment in total employment.

Over most of the 1976-90 period, growth in employer self-employment (ESE) had been more rapid than for own-account self-employment (OASE). Since the early 1990's, however, growth

in OASE grew rapidly while it fell almost to zero for ESE. Hence, despite the steady growth in overall self-employment, growth trends in OASE and ESE have diverged significantly since the early 1990's. Decomposition of the growth in self-employment relative to total employment over the 1984-96 period reveals that incidence has a more significant effect on OASE than on ESE. Thus the trend towards OASE, rather than ESE, has been a systemic phenomenon in the Canadian economy since the early 1980's.

The diverging trends between ESE and OASE since the early 1990's are atypical by comparison with the previous fifteen-year period. Over the period 1976-90, the level of OASE and ESE have shown no, or little, correlation to paid-employment at the aggregate level. Since 1990, ESE has closely tracked paid-employment (positively correlated) while OASE has performed much better (negatively correlated to paid-employment). Most of the large growth in OASE over the 1990-96 period has been due to an increase in incidence while the ESE sub-class has been subject to a moderate fall in incidence. If anything, occupational/industrial employment composition contributed to increase the share of both sub-classes since 1990.

The weak economy since the early 1990's contributed to the slowdown in the growth of ESE and to the pick up in OASE growth. However, it is difficult to measure this effect and therefore, it is impossible to say with any degree of precision what proportion of these trends will reverse themselves as paid-employment recovers. The particularly prolonged weak level of activity in the economy (as a result of adjusting to a new monetary policy regime and fiscal retrenchment) may have given rise to these new trends in employment.

Résumé

Depuis quelques années, le travail indépendant prend une forte ampleur par rapport à l'emploi rémunéré au Canada, de sorte que beaucoup veulent connaître les causes et les conséquences de ces faits nouveaux dans l'économie. De 1990 à 1996, le travail indépendant a augmenté de 3,3 pour cent par année en moyenne, tandis que l'emploi rémunéré n'a augmenté que 0,2 pour cent. Sur l'augmentation nette de 511 000 personnes qui occupaient un emploi au cours de cette période, environ 387 000 ont déclaré faire un travail indépendant (environ 75 %).

En se fondant sur les données de l'Enquête sur la population active, cette étude tente de mettre en perspective ces faits nouveaux par l'examen de certaines caractéristiques principales des tendances globales du travail indépendant dans l'économie canadienne sur la période de 1976 à 1996. Elle cherche en particulier à déterminer si la croissance du travail indépendant depuis quelques années est un signe que les formules de travail sont en voie d'évoluer, ou si cela peut s'expliquer par une conjoncture plus courante comme les effets du cycle économique. Les données sont analysées pour deux grandes sous-catégories du travail indépendant : les travailleurs autonomes employeurs (TAE) et les travailleurs à leur compte (TC).

Nous présentons d'abord une analyse des tendances globales du travail indépendant, de même que des volets TAE et TC. Nous décrivons et analysons ensuite les tendances du travail indépendant selon les groupes détaillés de professions et de branches d'activité. Nous faisons une décomposition des mouvements de la croissance du travail indépendant, par profession et par branche d'activité, de sorte que nous pouvons calculer quelle proportion de ces tendances découle de mouvements de la composition de l'emploi et quelle autre découle de changements de la structure de chaque profession et branche d'activité.

Selon notre analyse, la croissance du travail indépendant a été remarquablement stable pendant la période de 1976 à 1996 et, en particulier, il n'y a eu aucune hausse marquée de la croissance de cette forme d'emploi depuis quelques années. Néanmoins, si l'on décompose la croissance du travail indépendant par profession et par branche d'activité, on constate que l'incidence du travail indépendant plutôt que sa composition explique en grande partie la croissance du nombre de travailleurs indépendants pendant la période de 1984 à 1996. L'essor de l'économie du savoir a contribué à la hausse de la proportion du travail indépendant, mais ces effets ont été largement compensés par la contribution négative de professions plus traditionnelles comme l'agriculture, la pêche et la foresterie, dans lesquelles la proportion du travail indépendant est relativement importante.

Notre analyse détaillée par profession et par branche d'activité montre en outre que la croissance du travail indépendant s'est produite dans une vaste majorité de professions depuis le début des années 90, tandis que le contraire s'est produit pour l'emploi rémunéré. Par conséquent, dans un grand nombre de professions et de branches d'activité, on a cherché à devenir travailleur autonome parce qu'il y avait peu d'occasions d'obtenir un emploi rémunéré et de meilleures occasions d'accomplir un travail indépendant. En outre, comme l'emploi rémunéré est plutôt cyclique, ce qui n'est pas le cas du travail indépendant, en période de faible croissance de l'emploi, le travail indépendant représente une proportion anormale de la hausse globale nette de

l'emploi. Avec la reprise économique actuelle, la part du travail indépendant par rapport à l'emploi total devrait par conséquent diminuer.

Pendant la plus grande partie de la période de 1976 à 1990, la croissance des travailleurs indépendants employeurs (TAE) a été plus rapide que celle des travailleurs à leur compte (TC). Depuis le début des années 90 toutefois, la croissance des TC a été rapide, tandis que celle des TAE a été presque nulle. Par conséquent, malgré la croissance soutenue du travail indépendant dans l'ensemble, les tendances de la croissance pour les TC et les TAE respectivement se sont orientées très différemment depuis le début des années 90. Si l'on décompose la croissance du travail indépendant par rapport à l'emploi total pour la période de 1984 à 1996, on constate que l'incidence a été plus marquée sur les TC que sur les TAE. Par conséquent, la tendance vers les TC plutôt que vers les TAE a été un phénomène systémique dans l'économie canadienne depuis le début des années 80.

Les tendances divergentes des TAE et des TC depuis le début des années 90 sont atypiques en comparaison de la période antérieure sur quinze ans. Pour la période de 1976 à 1990, le nombre de TC et de TAE n'avait à peu près aucune corrélation avec l'emploi salarié dans l'ensemble. Depuis 1990, les TAE suivent de près les travailleurs rémunérés (corrélation positive), tandis que les TC ont eu de meilleurs résultats (corrélation négative par rapport aux travailleurs rémunérés). La plus grande partie de la forte croissance des TC pour la période de 1990 à 1996 est attribuable à une hausse de l'incidence, tandis que la sous-catégorie des TAE a été sujette à une chute modérée de l'incidence. En fait, la composition de l'emploi tant selon les professions que les branches d'activité a contribué à l'augmentation de la part des deux sous-catégories depuis 1990.

La faiblesse de l'économie depuis le début des années 90 a contribué au ralentissement de la croissance des TAE et à une reprise de celle des TC. Toutefois, il est difficile de mesurer cet effet de sorte qu'il est impossible d'évaluer précisément dans quelle mesure ces tendances s'inverseront au moment où la croissance de l'emploi rémunéré reprendra. Le faible niveau d'activité particulièrement prolongé dans l'économie (en raison de l'adaptation à un nouveau régime monétaire et aux compressions financières) peut avoir soutenu ces nouvelles tendances dans l'emploi.

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1. Introduction

Self-employment grew by 3.3 per cent per annum on average over the period 1990-96 while paid-employment grew by 0.2 per cent. Of the 511,000 net increase in the total number of people employed over this period, around 387,000 reported themselves as being self-employed (about 75%). This strong performance of self-employment relative to paid-employment over recent years in Canada has sparked a wide interest in determining the sources and implications of these developments in the economy.

Using Labour Force Survey data, this paper attempts to place these recent employment developments in perspective by exploring some of the main features of the aggregate trends in self-employment in the Canadian economy over the 1976-96 period.[1] In particular, it tries to shed some light on the question of whether or not the growth in self-employment in recent years is indicative of new patterns of work arrangements or if it can be explained by more usual circumstances such as the effects of the business cycle. Data are analyzed for the two main sub-classes of self-employment: employers who are self-employed (ESE), and the own-account self-employed (OASE). We show that recent employment trends between these two groups have been diverging significantly. The paper also provides a fairly detailed exposition of where these developments have been happening in terms of industry and what kind of work self-employed workers have been performing in terms of occupational skills. A shift-share decomposition of the growth in self-employment allows us to estimate what proportion of these trends results from shifts in the composition of employment and what proportion results from changes within the structure of each industry and occupation. This detailed examination of the structure of self-employment allows us to make some progress in disentangling some of the factors driving these trends.

The paper commences with a brief description of the various classifications of employment within Statistics Canada's Labour Force Survey and the definition of self-employment used in our discussion. An analysis of the aggregate trends in self-employment as well as the ESE and OASE components follow. Trends in self-employment by detailed occupation and industry groups are then described and analyzed. The paper concludes with a summary of the highlights and presents avenues for further study.

[1] Longer-term trends using Census of Population data have been examined by Gardner (1994).

2. Definitions of Self-Employment

The Labour Force Survey (LFS) classifies workers within three main classes: paid-employees (*i.e.*, workers receiving wages or salaries from an employer); unpaid family workers (*i.e.*, those who contribute directly to a business owned or operated by another family member living in the same dwelling) and the self-employed. Self-employment in general is defined as workers who operate their own incorporated or unincorporated business, farm or professional practice. The self-employed are divided into *employers* (ESE) and *own-account workers* (OASE). The ESE are the self-employed who usually have one or more paid workers assisting them in the business, farm or professional practice while the OASE are the self-employed who do not have paid help. Not all business owners are self-employed. A business owner who does not work in his or her business cannot be self-employed.

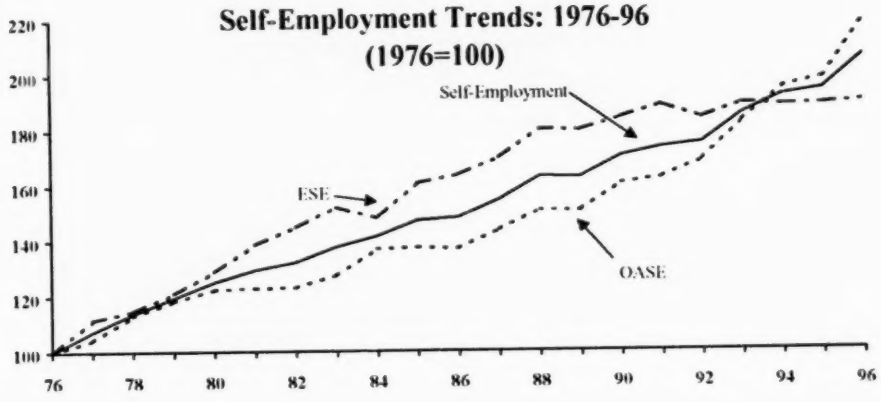
It is worth noting that, in the current paper, working owners of incorporated businesses are considered self-employed workers.[2] Legally, incorporated business owners are not considered self-employed but paid-employees. There is therefore a distinction to be made between self-employment as reported in the LFS and self-employment according to tax files. It is also worth keeping in mind that, in the United States Current Population Survey, workers declaring themselves as self-employed owners of incorporated business are classified as paid workers.

[2] Incorporation per se does not seem to be a valid economic reason for not treating working owners of businesses as self-employed individuals. It is a common practice to include incorporated self-employed workers as self-employed in analyzing the performance of self-employment in Canada. See for instance Macredie (1985) and Cohen (1988).

3. Overview of Aggregate Self-Employment Trends

According to LFS estimates, the growth rate in self-employment has been fairly steady at some 3.6 per cent per annum over the period 1976 to 1996 (Chart 1). Some slight increase in the growth rate may be apparent since 1992 but a formal statistical test shows that this change is not significant.[3] However, the constancy of the overall self-employment trend hides considerable and atypical movements in the growth rates of the two types of self-employment. In fact, from 1976 to 1990 the growth rate of the ESE sub-class was more rapid than the OASE. This situation was reversed markedly over the period 1992 to 1996 when the ESE component virtually stopped growing while the OASE component increased rapidly. Hence, although the trend in overall self-employment has not changed over the period 1976-96, two opposite tendencies have marked the composition of self-employment over recent years, with a notable shift towards own-account self-employment.[4]

Chart 1
Self-Employment Trends: 1976-96
(1976=100)



At 1.4 per cent per annum on average over the 1976-96 period, the growth in paid-employment has been much smaller than the growth in self-employment (3.6%). Consequently, as shown in Table 1, the proportion of self-employed as a share of total employment rose from 10.9 per cent in 1976 (1 in every 9 workers), to 16.2 per cent in 1996 (1 in every 6 workers).

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[3] Assuming a constant growth rate model.

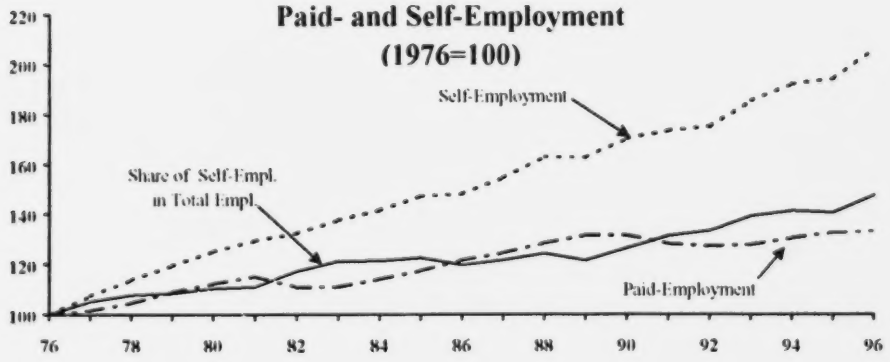
[4] Breaking down the data for each sub-class into incorporated or unincorporated business does not provide more information on the recent diverging developments between the sub-classes. In each sub-class the break in the trend growth over recent years is noticeable for both types of business, incorporated and unincorporated.

Table 1
Composition of Self-Employment
(%)

	Share of Self-Employment				Share of Employment			
	1976	1983	1990	1996	1976	1983	1990	1996
Total	100.0	100.0	100.0	100.0	10.9	13.3	13.8	16.2
OASE	58.0	53.7	54.6	61.4	6.3	7.1	7.6	9.9
ESE	42.0	46.3	45.4	38.6	4.6	6.1	6.3	6.2

It is also apparent that the growth trend in paid-employment over the 1976-96 period has been significantly less steady than the trend for self-employment (Chart 2). Paid-employment, contrary to self-employment, tends to rise and fall around a positive trend as the economy goes through various phases of business activity. In terms of the business cycle, the 1976-96 period comprises an expansion period from 1976 up until the 1981-82 recession, followed by a rapid and robust period of expansion up to the 1990-91 recession, succeeded by a slow and still incomplete recovery in output and employment.[5] As a consequence of these different trends, the proportion of self-employed workers in the economy tends to be counter-cyclical (rising during downturns and falling during recoveries). This phenomenon can be clearly seen in Chart 2. To assess the structural importance of self-employment in overall employment, one must therefore compare situations that are at similar stages of the business cycle. In particular, the share of self-employment in 1996 likely overstates the importance of self-employment in the Canadian economy.

Chart 2
Paid- and Self-Employment
(1976=100)



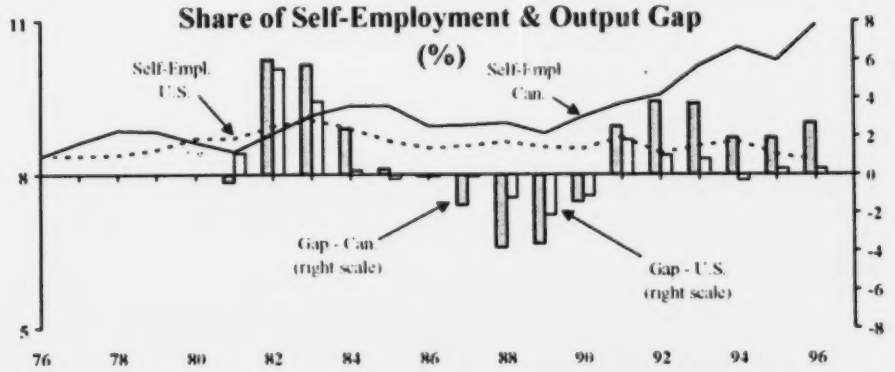
[5] Conservative estimates put the gap between output and potential output at around 2.5 to 3 per cent in Canada.

Examining what has happened in recent years in the United States further evidences this counter-cyclical phenomenon. As in Canada, the share of self-employment in total employment also tends to be counter-cyclical (Chart 3). However, contrary to Canada, the difference between potential output and actual output (the output gap) is essentially null in the U.S. as the economy has fully recovered from the fairly shallow 1990-91 recession. Chart 3 shows that the share of self-employment in the U.S. is now below what it was at the peak of the cycle while in Canada, in concordance with the presence of a substantial output gap, the share of self-employment is still considerably high.[6]

Chart 3

Share of Self-Employment & Output Gap

(%)



Visual examination of the two sub-classes of self-employment over the 1976-96 period (Chart 1) does not reveal any obvious cyclical employment pattern of the components either. The behaviour of OASE and ESE aggregates during or immediately following the 1981-82 recession (faster growth in ESE and weaker growth in OASE) was completely reversed in the 1990-91 recession (weaker growth in ESE and stronger growth in OASE). Not much can be said on the cyclical behaviour of employment in these two sub-classes without going into industrial and occupational detail, which are discussed in the two following sections. The absence of growth in ESE in recent years may result from the prolonged period of dampened economic growth and the concomitant increase in the rate of business bankruptcies. However, this lack of growth may not

[6] To make the Canadian data comparable to the concepts used in the United States, the incorporated self-employed were excluded from the sample. Notice that the upward tic in the self-employment trend for Canada in recent years, shown in Chart 3, is accentuated by the fact that it excludes the incorporated self-employed. Since a large proportion of ESE and a small proportion of OASE are incorporated, and because ESE is not trending up in recent years while OASE is, the upward trend in the share of self-employed is stronger.

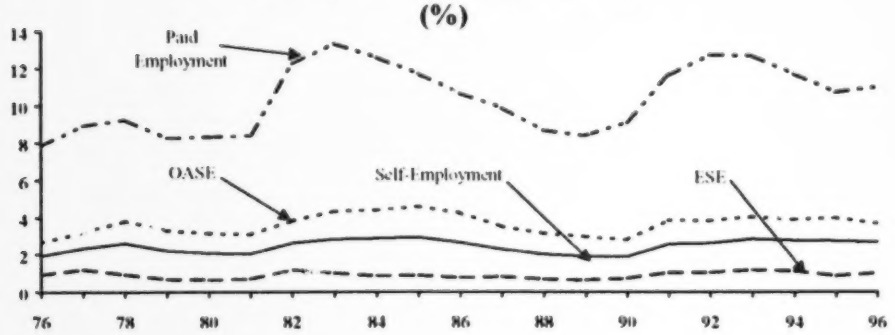
be linked to the cycle at all. Rather, it may reflect a general trend towards doing business without employees. Under such a systemic trend, OASE would increase faster while ESE would grow slower or fall.

Surprisingly, although there is no evidence of cyclical fluctuations in the work patterns of the self-employed, their unemployment rate shows cyclical fluctuations (Chart 4).[7] The variance of the unemployment rates among the self-employed is smaller than for paid-employment, but the coefficients of variation are very similar at around 15 per cent over the 1976-96 sample (relative variations are as large for the self-employed than for paid-employment). Moreover, the sample coefficient of correlation shows that the covariance between the self-employed and paid-employment unemployment rates is high, especially for the OASE component. Since one must have been self-employed to be considered an unemployed self-employed worker, at first glance, it may seem difficult to understand how the unemployment rate of self-employment may increase without, at the same time, observing a decline in the number of self-employed working. Two points can be made to reconcile these observations. First, although continuously growing, the employment of self-employed workers registered a slight reduction in the growth rate during the two recession periods. This is sufficient to create cyclical fluctuations in the unemployment rates. Second, it is also likely that some laid-off paid-employees became self-employed (creating self-employment and reducing the unemployment rate for this class of workers), a portion of whom became unemployed self-employed workers in the subsequent months (reducing employment and increasing the unemployment rate). If this pattern were significant, average annual data would show an increase in self-employment and an increase in their unemployment rate .[8]

[7] It goes without saying that the concept of an unemployed self-employed is not without ambiguities.

[8] The displacement of paid workers to self-employment during the 1981-82 recession has been discussed by Lévesque (1985). Cross-country evidence shows that there is considerable entry movements from paid-employment and unemployment into self-employment: OECD (1992). Canadian SLID data also shows significant movements between paid-employment and self-employment.

Chart 4
Unemployment Rates: 1976-96
(%)



Summarizing this section, the following points can be made: *First*, growth in self-employment has been remarkably steady over the period 1976-96 and, in particular, there has been no significant increase in growth of this form of employment over recent years. *Second*, because paid-employment is cyclical while self-employment is not, in periods of weak growth in overall employment (such as since the early 1990's), self-employment will comprise a larger proportion of net employment growth. *Third*, there is some support from the aggregate figures for the proposition that weak paid-employment opportunities encourage individuals to become self-employed. *Fourth*, despite the steady growth in overall self-employment, growth trends in OASE and ESE have diverged significantly and atypically since the early 1990's, a phenomenon that remains to be analyzed and explained.

4. Trends in Occupational Self-Employment

Some work activities or occupations tend to have a higher proportion of self-employed than others. Reasons for this are likely numerous, certainly complex and, moreover, changing over time as the institutional, economic and social environment evolves. An example of the kind of complexities involved may be instructive. Occupations where working activities and tasks require little physical capital may lend themselves better to self-employment. The idea being that when the physical capital required to complement the labour service is large, the level of risk associated with the capital investment is high, making financing arrangements more troublesome and the investment less attractive.[9] However, while a relatively low stock of physical capital may still be as important a determinant of self-employment as it was in the past, other more recent influences may tend to offset these effects. For instance, with the development of ogy and the concomitant fall in the costs of contract management compared to the costs ntrol of employees, contracting out activities have increased rapidly, opening the door place arrangements favouring self-employment.[10] Today, one can even envisage elf-employed train crew operator selling his or her labour services to the at owns the capital.

his section is not to explain or find out why some occupations tend to have more yed workers than others. Rather, the analysis will describe how the occupational e has changed over time and how these changes in composition may have affected the importance of self-employment in the overall economy. Some emphasis is put on the role of the business cycle and how the occupational structure has evolved between ESE and OASE, especially over recent years.

4.1 Total Self-Employment by Occupation

At the outset it would be useful to describe the current broad occupational composition of the self-employed, how it has evolved over the period 1984-96, and how it compares to the

[9] The risk is lower for an employer/employee type of organization since under this arrangement, there is some separation between the ownership of the physical capital and the ownership of the human capital. In other words, the owner of capital can always fire incompetent employees and replace them with competent ones.

[10] Osberg, Wolff and Baumol (1989).

paid-employee class of workers.[11] For this purpose, occupational employment is broken down into four major types according to the nature of the tasks performed by workers: knowledge (working at generating ideas or expert opinions), data (working at manipulating and transmitting symbolic information), services (providing personal services) and goods (working at transforming materials).[12]

The occupational composition of self-employment in 1996 shows that this class comprises a large share of goods workers relative to paid-employment, much less data workers, a similar share of services workers and slightly more knowledge workers (Table 2). These differences reflect the fact that only a small proportion of clerical workers are self-employed (many clerical occupations are classified in the data category) while a large portion of workers in fishing, farming and construction occupations are self-employed (goods workers).

Table 2
Self-Employment by Type of Workers
(%)

	Self-Employment		Paid-Employment	
	Share (1996)	Growth (1984-96)	Share (1996)	Growth (1984-96)
Total	100.0	3.2	100.0	1.2
Knowledge	16.7	5.7	13.5	3.0
Data	29.0	3.5	41.5	1.3
Services	17.1	3.3	17.0	1.7
Goods	37.3	2.1	28.1	0.3

The knowledge workers group has been the fastest growing type for both paid- and self-employment, although relative to the growth of total employment for each class of workers, it has grown slightly less rapidly for self-employment. More marked differences in the relative growth over the 1984-96 period were observed for services and goods workers. In particular, the growth of goods workers has been much more robust in the self-employed class than for paid-employees. This essentially means that goods workers are accounting for a declining share of employment in both classes of workers, but at a significantly less rapid pace among the self-employed.

[11] Detailed and time-consistent occupational data are not available in the LFS prior to 1984.

[12] The detailed classification is presented in Lavoie and Roy (Spring 1997).

If we look at occupations according to the 21 major groups provided by the Standard Occupational Classification (SOC), we see that self-employed workers are fairly concentrated in certain areas (Table 3). For example, in 1996 some 68 per cent of the self-employed were working in the following five 2-digit occupational groups: sales (18.6%), services (15.8%), farming (13.1%), managerial (10.5%) and construction trades (9.6%). These five groups comprised some 72 per cent of the self-employed in 1984. The fall in the proportion of self-employment in farming occupations (from 18.5% in 1984 to 13.1% in 1996) was mainly responsible for the fall of self-employment in this group. These five occupations constituted 46 per cent of overall employment in the economy in 1996 (44% in 1984).

Table 3
Self-Employment by Occupation

2-Digit SOC	SE (000's)			Employment (000's)			Share of Total SE (%)			Share of Empl. (%)			SE Growth (%)*		
Occupations	1984	1990	1996	1984	1990	1996	1984	1990	1996	1984	1990	1996	84-90	90-96	84-96
Total	1,513.8	1,821.9	2,208.9	11,402.1	13,164.8	13,675.9	100.0	100.0	100.0	13.3	13.8	16.2	3.1	3.3	3.2
Managerial	124.2	231.5	232.0	1,216.2	1,697.1	1,899.5	8.2	12.7	10.5	10.2	13.6	12.2	10.9	0.0	5.3
Natural Sciences	30.8	46.6	71.7	410.0	487.3	544.6	2.0	2.6	3.2	7.5	9.6	13.2	7.2	7.4	7.3
Social Sciences	28.1	35.7	45.5	187.9	258.1	305.1	1.9	2.0	2.1	15.0	13.8	14.9	4.1	4.1	4.1
Religion	0.0	0.0	0.0	32.4	34.8	34.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Teaching	16.1	19.7	29.8	488.8	567.9	635.3	1.1	1.1	1.4	3.3	3.5	4.7	3.5	7.1	5.3
Medicine	56.3	62.9	88.0	560.0	664.3	744.5	3.7	3.5	4.0	10.1	9.5	11.8	1.8	5.8	3.8
Artistic	58.0	84.8	125.5	193.2	251.3	319.9	3.8	4.7	5.7	30.0	33.7	39.2	6.5	6.8	6.7
Clerical	27.4	39.4	52.5	1,959.9	2,191.5	1,948.1	1.8	2.2	2.4	1.4	1.8	2.7	6.3	4.9	5.6
Sales	298.5	324.1	410.6	1,088.0	1,270.9	1,374.3	19.7	17.8	18.6	27.4	25.5	29.9	1.4	4.0	2.7
Service	242.7	262.7	349.4	1,555.1	1,735.3	1,896.9	16.0	14.4	15.8	15.6	15.1	18.4	1.3	4.9	3.1
Farming	280.2	275.3	289.6	509.8	463.7	471.4	18.5	15.1	13.1	55.0	59.4	61.4	-0.3	0.8	0.3
Fishing	20.8	24.9	22.2	33.3	39.3	32.4	1.4	1.4	1.0	62.2	63.3	68.6	3.1	-1.9	0.6
Forestry	10.2	11.7	12.3	66.4	51.8	57.5	0.7	0.6	0.6	15.4	22.6	21.3	2.3	0.8	1.5
Mining	3.6	4.0	6.8	66.4	64.4	57.7	0.2	0.2	0.3	5.5	6.2	11.8	1.7	9.2	5.4
Processing & Rel.	12.1	11.3	16.2	383.1	388.1	360.2	0.8	0.6	0.7	3.1	2.9	4.5	-1.1	6.2	2.5
Machining & Rel.	12.1	13.1	18.4	231.1	229.4	215.9	0.8	0.7	0.8	5.2	5.7	8.5	1.4	5.8	3.6
Product Fabricating	82.2	89.6	125.0	985.7	1,059.6	1,086.2	5.4	4.9	5.7	8.3	8.5	11.5	1.5	5.7	3.5
Construction	136.9	199.3	211.0	595.2	782.7	684.9	9.0	10.9	9.6	23.0	25.5	30.8	6.5	1.0	3.7
Transportation	62.5	73.9	85.9	415.4	492.7	516.3	4.1	4.1	3.9	15.0	15.0	16.6	2.8	2.5	2.7
Material Handling	3.0	2.2	2.2	273.8	276.0	330.8	0.2	0.1	0.1	1.1	0.8	0.7	-5.5	0.7	-2.4
Other Crafts	8.1	9.1	14.4	150.4	158.4	160.3	0.5	0.5	0.7	5.4	5.8	9.0	2.1	7.9	5.0

*Average annual growth rates

Over the 1984-96 period, average growth rates in self-employment were particularly strong in the following major groups natural sciences (7.3%), artistic occupations (6.7%), clerical (5.6%), mining (5.4%), managerial (5.3%) and teaching (5.3%). Overall the growth of these 6 occupational groups accounted for about 37 per cent of the total growth in self-employment (258,000 workers, of which 68,000 are in artistic occupations alone). Percentage growth rates of self-employment in sales, services and construction occupations were not as spectacular (2.7%,

3.1% and 3.7% respectively) but in level terms, these three groups accounted for 42 per cent of the total level growth. In total, the above 9 groups accounted for about 79 per cent of the growth in self-employment. Growth was weak or negative in farming (0.3%), fishing (0.6%), forestry (1.5%) and material handling (-2.4%). At the 3-digit SOC level (minor groups), growth has been particularly rapid in occupations related to management (10.2%), sale of services (7.2%), life sciences (8.1%), mathematicians and systems analysts (16.6%), nursing (14.4%) and protective services (13.7%).[13]

How does this compare to developments in paid-employment? Growth was also relatively strong for paid-employment in managerial (3.6%), natural sciences (1.9%), artistic (3.1%) and teaching (2.1%) occupations.[14] These four groups accounted for some 54 per cent of the overall growth in paid-employment over the period 1984-96. However, paid-employment fell for clerical and mining occupations while it increased strongly for self-employment. Paid-employment also grew relatively strongly in sales and service. Fishing, farming and forestry occupations declined significantly over the period while material handling increased. Broadly speaking, at this level of aggregation and relative to the average growth for the two classes of work, growth in employment was either consistently strong or consistently weak in similar occupational groupings. Clerical, mining and material handling occupations showed diverging trends between self-employment and paid-employment. Among the sixty 3-digit SOC occupations, growth in paid- and self-employment over the 1984-96 period diverged in sign for 22 groups (37% of the occupations). This means that while self-employment in these occupations was rising (falling), paid-employment was falling (rising). These diverging trends in the level of employment between classes are concentrated in declining or relatively stagnant occupations and, for most of these groups, the incidence of self-employment in the occupation is growing. The overview therefore for the 1984-96 period is as follows: where employment has been strong, both self-employment and paid-employment have grown (although at a faster pace for self-employment); and, where employment has been weak or falling, both self-employment and paid-employment have been relatively weak (although less weak for self-employment).[15]

[13] Data at the 3-digit minor level not shown but can be made available by request.

[14] Data for paid-employment are not shown but can be made available by request.

[15] In stagnant or declining industries, trends in employment by class diverge in sign (i.e., one declining and one increasing) since there is a clustering of the distribution of growth by industry around zero.

Although the growth rate of self-employment has been stable between the two 6-year periods 1984-90 and 1990-96, some of the occupational trends have diverged substantially. The growth rate has increased significantly in 11 of the 21 major groups in the most recent period relative to the 1980's and has fallen in only 4. Teaching, medicine, sales, services, machining, product fabricating, material handling, mining, processing and other crafts have exhibited increasing growth while that for managerial, fishing, forestry and construction occupations has slowed. In the paid-employed class, almost all occupational groups have seen their growth pace fall significantly, leading to substantial increases in the proportion of self-employment in occupational employment. In more than 40 per cent of the 3-digit occupational groups (there are some 60 such minor groups), the fall in the number of paid-employees from 1990 to 1996 was accompanied by an increase in the number of self-employed. This phenomenon has been particularly strong among clerical occupations where paid-employment fell 256,000 while self-employment increased by 25,000.

Self-employment constitutes an important proportion of employment in some occupations. In 1996, it comprised 68.5 percent of fishing, 61.4 per cent of farming, 39.2 per cent of artistic, 30.8 per cent of construction and 29.9 per cent of sales occupations. Some professional occupations such as lawyers and notaries, physicians and dentists also have a high proportion of self-employment.

The proportion of self-employment in occupational employment grew or stayed constant for all major occupational groups but material handling over the 1984-96 period and therefore the trend towards an increased reliance on self-employment constitutes a widespread phenomenon in the Canadian economy. Interestingly, even in occupational groups where the proportion of self-employment fell over the 1984-90 period -- medicine, sales, services and processing -- the proportion of self-employment rose over the 1990-96 period. Among occupations where total employment fell over the 1984-96 period -- clerical, farming, fishing, forestry, mining, processing and machining -- the number of self-employed continued to grow in absolute terms. The trend towards self-employment is also of significant magnitude. At the 3-digit occupational level, 30 (about half) of the minor groups had more than 10 per cent of their work force composed of self-employment in 1996, up from 27 in 1984.

While an occupation may have a large proportion of its employment composed of self-employed workers, it may not account for a large proportion of self-employment in the overall economy. For example, although 68.6 per cent of workers in fishing occupations were self-employed in 1996, they represented only 22,000 people (0.2% of total employment). Conversely, self-employment constituted 18.4 per cent of all employment in service occupations, but 350,000 individuals (3.0% of total employment). The five major occupational groups comprising the largest proportions of self-employment (sales, services, farming, managerial and construction) accounted for some 10.9 per cent of total employment in the economy in 1996 (67% of the overall contribution of self-employment). The contribution of these five occupational groups was 9.5 per cent in 1984 (71.5%) and 9.8 per cent in 1990 (71%).

The numerical importance of occupational self-employment and its change through time can be appreciated by examining in more detail the proportion of occupational self-employment to overall employment in the economy (Table 3). For this purpose, we break down the change in the share of occupation-specific self-employment in overall employment into two components: a change in the composition of employment and a change in the intensity of self-employment in this occupational group. To illustrate this approach let us consider the case of self-employment in farming occupations. The proportion of self-employed in farming occupations as a share of total employment fell from 2.5 percent in 1984 to 2.1 per cent in 1996, a percentage point drop of 0.4. This fall can be the result of a decline in the overall employment in farming occupations, a fall in the proportion of self-employed within farming occupations, or both. The first type of effect will be dubbed *composition* because it is the result of a change in the composition of employment in the economy while the second will be dubbed *incidence* since it reflects a change in the degree of intensity of self-employment in occupational employment.[16] Table 4 shows that in the specific case of farming occupations, the employment composition effect represented a -0.56 percentage point fall while the incidence effect contributed to a 0.29 percentage point increase in the overall proportion of self-employment in the economy (with an unallocated residual of -0.07). In other words, the fall in the contribution of farming occupations in the overall proportion of self-employment to total employment is attributable to a decline in the

[16] The Appendix gives a formal presentation of the decomposition.

importance of farming occupations in the economy and not to a fall in the incidence of self-employment in farming.

Table 4
Decomposition of Change in Self-Employment by Occupation

2-Digit SOC Occupations	Share of SE in Total Employment (%)			Percentage Point Change in Share Due to:								
				Total			Composition			Incidence		
	1984	1990	1996	84-90	90-96	84-96	84-90	90-96	84-96	84-90	90-96	84-96
Total	13.28	13.84	16.15	0.56	2.31	2.88	-0.14	0.21	0.07	0.67	2.12	2.83
Managerial	1.09	1.76	1.70	0.67	-0.06	0.61	0.23	0.14	0.33	0.37	-0.18	0.21
Natural Sciences	0.27	0.35	0.52	0.08	0.17	0.25	0.01	0.03	0.03	0.07	0.13	0.20
Social Sciences	0.25	0.27	0.33	0.02	0.06	0.09	0.05	0.04	0.09	0.02	0.02	0.00
Religion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Teaching	0.14	0.15	0.22	0.01	0.07	0.08	0.00	0.01	0.01	0.01	0.05	0.06
Medicine	0.49	0.48	0.64	-0.02	0.17	0.15	0.01	0.04	0.05	-0.03	0.12	0.09
Artistic	0.51	0.64	0.92	0.14	0.27	0.41	0.06	0.15	0.19	0.06	0.11	0.16
Clerical	0.24	0.30	0.38	0.06	0.08	0.14	-0.01	-0.04	-0.04	0.07	0.15	0.22
Sales	2.62	2.46	3.00	-0.16	0.54	0.38	0.03	0.10	0.14	-0.19	0.42	0.23
Service	2.13	2.00	2.55	-0.13	0.56	0.43	-0.07	0.10	0.04	-0.06	0.43	0.38
Farming	2.46	2.09	2.12	-0.37	0.03	-0.34	-0.52	-0.04	-0.56	0.20	0.07	0.29
Fishing	0.18	0.19	0.16	0.01	-0.03	-0.02	0.00	-0.04	-0.03	0.00	0.02	0.02
Forestry	0.09	0.09	0.09	0.00	0.00	0.00	-0.03	0.01	-0.02	0.04	0.00	0.03
Mining	0.03	0.03	0.05	0.00	0.02	0.02	-0.01	0.00	-0.01	0.00	0.03	0.04
Processing & Rel.	0.11	0.09	0.12	-0.02	0.03	0.01	-0.01	-0.01	-0.02	-0.01	0.05	0.05
Machining & Rel.	0.11	0.10	0.13	-0.01	0.03	0.03	-0.01	-0.01	-0.02	0.01	0.05	0.07
Product Fabricating	0.72	0.68	0.91	-0.04	0.23	0.19	-0.05	-0.01	-0.06	0.01	0.25	0.27
Construction	1.20	1.51	1.54	0.31	0.03	0.34	0.17	-0.24	-0.05	0.13	0.32	0.41
Transportation	0.55	0.56	0.63	0.01	0.07	0.08	0.01	0.00	0.02	0.00	0.06	0.06
Material Handling	0.03	0.02	0.02	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	-0.01
Other Crafts	0.07	0.07	0.11	0.00	0.04	0.03	-0.01	0.00	-0.01	0.01	0.04	0.05

Summing up across occupational groups we find that, of the 2.9 percentage point increase in the proportion of self-employment in total employment over the 1984-96 period, some 2.8 points can be linked to an increase in incidence. Overall, the compositional term had almost no effect on the total share. Over the most recent period (1990-96), over which 80 per cent of the growth in the share of self-employment occurred, the composition of employment contributed 9 per cent to the growth, while the incidence accounted for the rest of the increase. We may therefore conclude that in net terms,[17] most of the gains made by self-employment in overall employment over the past 12 years were due to an increase in incidence of self-employment rather than a shift in the occupational composition of employment. Over the 1984-90 period, the employment composition effect contributed to reduce the importance of self-employment and therefore,

[17] Individual occupation composition and incidence effects may well cancel each other out. The net effects do not capture the full dynamics of occupational employment.

although the increase in the share of self-employment was modest relative to the 1990-96 period, the incidence was once more the main driver.

The influence of the business cycle on composition and incidence effects in each occupation is not straightforward. Where employment tends to be non-cyclical, we would also expect the incidence to be non-cyclical. On the other hand, we would expect the composition effects to be counter-cyclical (although not large). Overall therefore, for non-cyclical occupations, the occupational importance of self-employment in total employment will tend to be counter-cyclical but small, and mainly driven by compositional effects. For example, in health diagnosing occupations, which tend to be non-cyclical, the proportion of self-employment in the overall economy rose slightly between 1990 and 1996. This increase is essentially attributable to the composition effect, as the incidence remained unchanged. For cyclical occupations, the proportion of occupational self-employment in total employment may not be counter-cyclical since the compositional effect tends to be pro-cyclical while the incidence effect is counter-cyclical. However, because at the aggregate level incidence is dominating, this must also be the case for most cyclical occupations. A casual look at Table 4 shows that the incidence effect is much more modest in non-cyclical occupations (managerial, natural and social sciences) and more important in cyclical ones (product fabricating and construction).[18] This gives support to the view that the recent growth in the share of self-employment has a significant cyclical component and should be reversed over the coming years.

Some 2.46 points of the 2.88 percentage point net increase in the share of self-employment over the 1984-96 period occurred in 6 major groups; managerial, natural sciences, artistic, sales, service, and construction. Around 27 per cent of this growth resulted from the composition effect while the rest occurred due to an increase in incidence. In managerial, artistic and sales occupations, the composition effect accounted for some 50 per cent of the growth. The most important increases in occupational self-employment in the 1990-96 period occurred in sales (commodities and services), services (mostly personal), artistic, product fabricating, medicine and natural sciences (mostly systems analysts). Around 20 per cent of this growth is attributable

[18] Fiscal consolidation and relatively high interest rates over most of the 1990-96 period have also depressed employment in occupations that are traditionally not very cyclical (sales and services for example). Of course the pattern discussed in the text may not be applicable in all groupings since structural effects are also present in the actual data.

to compositional effects while the remaining 80 per cent can be associated to an increase in incidence. The pattern of incidence between the 1984-90 and 1990-96 periods suggests that part of the growth over the latest period, especially in sales and service occupations, is cyclical.

What can we conclude from the 1984-96 occupational trends in self-employment? *First*, the self-employed are still concentrated in a small number of broad occupational groups. Salespersons, farmers, personal service providers, managers and construction trades still represent the bulk of the self-employed (much larger proportion of goods workers than in paid-employment). *Second*, many of the fast/slow growing occupations for self-employed individuals are also fast/slow growing for paid-employees (there are important exceptions). There are therefore some linkages between the two classes of work at the occupational level. *Third*, growth in self-employment *since* 1990 has picked up for a majority of occupational major groups and weakened in only a small number of groups, the opposite of what happened in paid-employment. In almost half of the minor occupational groups, paid-employment fell at the same time that self-employment rose. *Fourth*, most of the net gains made by self-employment in overall employment over the past 12 years were made through an increase in incidence rather than a change in the composition of occupational employment in the economy. Compositional effects are nevertheless important for many occupational groups. *Fifth*, a significant proportion of the increase in the incidence of self-employment over recent years -- and therefore in the share of self-employment -- is related to the cyclical weakness in paid-employment and should be reversed over the coming years.

4.2 Own-Account and Employers Classes by Occupation

There are considerable differences in the occupational distribution of OASE and ESE. The simple correlation coefficient between the occupational composition of the two sub-classes at the 3-digit SOC level, at 0.61, is not as large as one might have thought. Also, looking at the differences between the shares of OASE and ESE in individual occupations, we find that in 56 per cent of them, one of the shares is at least twice as large as the other. The occupational distributions of ESE and OASE also differ in terms of their deviation from their class average. The distribution of the ESE shares is significantly flatter than for OASE.

The occupational composition of OASE and ESE in 1996 shows that there is a larger proportion of information workers (knowledge or data workers) among ESE (because of managers and supervisors) than among OASE which, on the other hand, has a larger proportion of services (because of personal services occupations) and goods workers (largely because of farming) (Table 5). However, the share of information workers over the period 1984-96 has been growing rapidly in the OASE sub-class while it has been slowly declining in the ESE sub-class. The knowledge worker category has been growing most strongly in the OASE sub-class (both in absolute and relative terms).

Table 5
OASE & ESE by Type of Workers
(%)

	OASE		ESE		Paid-Employment	
	Share (1996)	Growth (1984-96)	Share (1996)	Growth (1984-96)	Share (1996)	Growth (1984-96)
Total	100.0	4.0	100.0	2.1	100.0	1.2
Knowledge	15.4	9.3	18.6	2.5	13.5	3.0
Data	25.6	5.3	34.4	1.8	41.5	1.3
Services	19.7	3.5	12.8	2.7	17.0	1.7
Goods	39.2	2.1	34.2	2.0	28.1	0.3

The occupational structure of employment between ESE and OASE is similar to the total self-employment. In 1996, each of these two sub-classes had about 68 per cent of its employment in the five following major groups: managerial, sales, services, construction and farming. Notable differences within this group of five between the sub-classes are in managerial, which has a much larger proportion in the ESE sub-class, and farming and services, which both

have a smaller significance in the employer sub-class than in the OASE sub-class (Tables 6 and 7). An examination of the 3-digit minor occupational groups reveals other significant differences. In managerial occupations for example, ESE is concentrated in the occupational minor group of managers and administrators while the OASE is almost exclusively in occupations *related* to management and includes occupations such as accountants, financial and personnel officers.[19] In service occupations, ESE are mainly found in food-related occupations (as supervisors) while for OASE they are concentrated in personal service occupations (childcare workers, hairdressers, etc..). Outside of the five major groups with the largest shares, the most significant differences between the two self-employment sub-classes include medicine (mainly for dentists, veterinarians and chiropractors) where ESE has a large share relative to OASE, and artistic occupations where OASE is largely the most important type of self-employment.

It is apparent that the difference in the trend growth rate between ESE and OASE has been particularly striking over the period 1990 to 1996 (Chart 1 and Table 1). Prior to the early 1990's, and especially in the late 1970s and early 1980's, the trend growth in the ESE sub-class was slightly more rapid than for the OASE sub-class. Over the period 1981-90 (from peak to peak in terms of economic activity), growth was very similar between the two sub-classes with ESE growing at 3.2 per cent per annum on average and OASE growing at 3.0 per cent. For the period 1984 to 1996, over which we have detailed occupational data, the growth in the ESE and OASE sub-classes can be broken down in two distinct periods: 1984 to 1990 and 1990 to 1996 (Table 8). Over the first period both self-employed sub-classes grew in accordance with their longer historical trends while, over the 1990-96 period, growth in ESE fell significantly while the OASE growth accelerated.

[19] One would think that because most working owners of businesses with paid help are likely to spend a significant proportion of their time performing management tasks, many of the ESE would be classified as managers. However, only 18.4 per cent of self-employed employers are classified in managerial occupations in 1996. In SOC, working owners of establishments are often classified as *managing supervisors* within the industry or type of business they operate and not as *managers*. Although both perform management functions, there are subtle differences between the two occupational groups. In 1996, some 255,000 ESE workers were classified as managing supervisors, bringing the share of ESE mainly performing some form of management tasks to about 50 per cent.

Table 6
ESE by Occupation

2-Digit SOC Occupations	ESE (000's)			Employment (000's)			Share of Total ESE (%)			Share of Empl. (%)			ESE Growth (%)*		
	1984	1990	1996	1984	1990	1996	1984	1990	1996	1984	1990	1996	84-90	90-96	84-96
Total	664.0	826.4	852.2	11,402.1	13,164.8	13,675.9	100.0	100.0	100.0	5.8	6.3	6.2	3.7	0.5	2.1
Managerial	106.4	195.5	156.5	1,216.2	1,697.1	1,899.5	16.0	23.7	18.4	8.7	11.5	8.2	10.7	-3.6	3.3
Natural Sciences	13.9	17.7	16.4	410.0	487.3	544.6	2.1	2.1	1.9	3.4	3.6	3.0	4.2	-1.3	1.4
Social Sciences	21.5	26.2	27.8	187.7	258.1	305.1	3.2	3.2	3.2	11.5	10.2	9.0	3.3	0.7	2.0
Religion	0.0	0.0	0.0	32.4	34.8	34.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Teaching	2.1	2.3	3.8	488.8	567.9	635.3	0.3	0.3	0.4	0.4	0.4	0.6	1.6	8.5	5.0
Medicine	45.0	44.3	57.2	566.0	664.3	744.5	6.8	5.4	6.7	8.0	6.7	7.7	-0.3	4.4	2.0
Artistic	15.0	17.3	20.7	193.2	251.3	319.9	2.3	2.1	2.4	7.8	6.9	6.5	2.4	3.1	2.7
Clerical	13.9	22.1	24.5	1,959.9	2,191.5	1,948.1	2.1	2.7	2.9	0.7	1.0	1.3	8.0	1.7	4.8
Sales	152.2	149.3	165.7	1,088.0	1,270.9	1,374.3	22.9	18.1	19.4	14.0	11.7	12.1	-0.3	1.8	0.7
Service	69.8	79.4	95.9	1,555.1	1,735.3	1,896.9	10.5	9.6	11.3	4.5	4.6	5.1	2.2	3.2	2.7
Farming	65.0	73.9	73.0	509.8	463.7	471.5	9.8	8.9	8.6	12.8	15.9	15.5	2.2	-0.2	1.0
Fishing	6.2	11.6	10.2	33.3	39.3	32.4	0.9	1.4	1.2	18.7	29.5	31.6	10.9	-2.0	4.2
Forestry	4.3	5.7	5.5	66.4	51.8	57.5	0.7	0.7	0.6	6.5	11.0	9.6	4.7	-0.5	2.1
Mining	2.6	2.4	4.6	66.4	64.4	57.7	0.4	0.3	0.5	3.9	3.8	8.0	-1.2	11.2	4.8
Processing & Rel.	9.4	8.3	11.0	383.1	388.1	360.2	1.4	1.0	1.3	2.4	2.1	3.1	-2.0	4.8	1.3
Machining & Rel.	6.1	6.5	7.2	231.1	229.4	215.9	0.9	0.8	0.8	2.6	2.8	3.3	1.1	1.6	1.3
Product Fabricating	38.9	43.9	53.4	985.7	1,059.6	1,086.2	5.9	5.3	6.3	3.9	4.1	4.9	2.0	3.3	2.7
Construction	65.5	92.8	85.8	595.2	782.7	684.9	9.9	11.2	10.1	11.0	11.9	12.5	6.0	-1.3	2.3
Transportation	18.6	21.5	26.6	415.4	492.7	516.3	2.8	2.6	3.1	4.5	4.4	5.2	2.4	3.6	3.0
Material Handling	2.0	1.0	0.8	273.8	276.0	330.8	0.3	0.1	0.1	0.7	0.4	0.2	-10.3	-5.1	-7.7
Other Crafts	5.4	4.5	6.0	150.4	158.4	160.3	0.8	0.5	0.7	3.6	2.8	3.8	-3.0	4.9	0.9

*Average annual growth rates

Table 7
Own-Account Self-Employment by Occupation

2-Digit SOC Occupations	OASE (000's)			Employment (000's)			Share of Total OASE (%)			Share of Empl. (%)			OASE Growth(%)		
	1984	1990	1996	1984	1990	1996	1984	1990	1996	1984	1990	1996	84-90	90-96	84-96
Total	849.8	995.6	1,356.8	11,402.1	13,164.8	13,675.9	100.0	100.0	100.0	7.5	7.6	9.9	2.7	5.3	4.0
Managerial	17.8	36.0	75.5	1,216.2	1,697.1	1,899.5	2.1	3.6	5.6	1.5	2.1	4.0	12.5	13.1	12.8
Natural Sciences	16.9	28.9	55.3	410.0	487.3	544.6	2.0	2.9	4.1	4.1	5.9	10.2	9.3	11.5	10.4
Social Sciences	6.6	9.5	18.1	187.9	258.1	305.1	0.8	1.0	1.3	3.5	3.7	5.9	6.3	11.3	8.8
Religion	0.0	0.0	0.0	32.4	34.8	34.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Teaching	14.0	17.4	26.1	488.8	567.9	635.3	1.6	1.8	1.9	2.9	3.1	4.1	3.8	6.9	5.3
Medicine	11.3	18.6	30.8	560.0	664.3	744.5	1.3	1.9	2.3	2.0	2.8	4.1	8.6	8.8	8.7
Artistic	42.9	67.5	104.8	193.2	251.3	319.9	5.1	6.8	7.7	22.2	26.8	32.7	7.8	7.6	7.7
Clerical	13.5	17.3	28.0	1,959.9	2,191.5	1,948.1	1.6	1.7	2.1	0.7	0.8	1.4	4.3	8.4	6.3
Sales	146.3	174.8	244.9	1,088.0	1,270.9	1,374.3	17.2	17.6	18.0	13.4	13.8	17.8	3.0	5.8	4.4
Service	173.0	183.3	253.5	1,555.1	1,735.3	1,896.9	20.4	18.4	18.7	11.1	10.6	13.4	1.0	5.6	3.2
Farming	215.2	201.4	216.6	509.8	463.7	471.4	25.3	20.2	16.0	42.2	43.4	46.0	-1.1	1.2	0.1
Fishing	14.5	13.3	12.0	33.3	39.3	32.4	1.7	1.3	0.9	43.6	33.8	36.9	-1.4	-1.8	-1.6
Forestry	5.9	6.0	6.7	66.4	51.8	57.5	0.7	0.6	0.5	8.9	11.6	11.7	0.3	1.9	1.1
Mining	1.0	1.6	2.2	66.4	64.4	57.7	0.1	0.2	0.2	1.5	2.4	3.8	7.9	5.7	6.8
Processing & Rel.	2.7	3.0	5.2	383.1	388.1	360.2	0.3	0.3	0.4	0.7	0.8	1.4	1.9	9.7	5.7
Machining & Rel.	5.9	6.6	11.2	231.1	229.4	215.9	0.7	0.7	0.8	2.6	2.9	5.2	1.7	9.3	5.4
Product Fabricating	43.3	45.8	71.6	985.7	1,059.6	1,086.2	5.1	4.6	5.3	4.4	4.3	6.6	0.9	7.7	4.3
Construction	71.4	106.5	125.2	595.2	782.7	684.9	8.4	10.7	9.2	12.0	13.6	18.3	6.9	2.7	4.8
Transportation	43.8	52.4	59.3	415.4	492.7	516.3	5.2	5.3	4.4	10.6	10.6	11.5	3.0	2.1	2.6
Material Handling	1.0	1.1	1.5	273.8	276.0	330.8	0.1	0.1	0.1	0.4	0.4	0.5	1.3	4.9	3.0
Other Crafts	2.6	4.6	8.4	150.4	158.4	160.3	0.3	0.5	0.6	1.8	2.9	5.2	9.8	10.4	10.1

Table 8
Average Growth of OASE & ESE
(%)

	1976-96	1976-81	1981-90 (84-90)	1990-96
Total SE	3.7	5.3	3.1 (3.1)	3.3
OASE	4.0	4.2	3.0 (2.7)	5.3
ESE	3.3	6.8	3.2 (3.7)	0.5

On an occupational basis, growth in OASE over the 1984-90 period was more widespread than for ESE. Indeed, in the ESE sub-class, growth was strong[20] in only 4 major occupational groups while for the OASE sub-class, growth was strong in 10 of the major occupational groups (Tables 6 and 7). ESE workers registered weak or negative growth in 11 major occupational groups while the same was true in only 6 OASE occupations. Three of the 4 fastest growing occupational groups in ESE also grew strongly in OASE (managerial, clerical and construction). Four of the 6 slowest growing or declining occupations in the OASE were also weak in the ESE sub-class (services, farming, product fabricating and material handling). In a number of the remaining occupational groups, the level of self-employment was falling in one sub-class and growing in the other. For instance, in medicine, sales, mining, processing, and other crafts occupations, the absolute number of ESE workers fell over the 1984-90 period while it grew in the OASE sub-class. In farming and fishing occupations, employment fell in OASE whereas it grew in the ESE sub-class. In terms of shares of occupational employment, ESE rose for 10 of the 21 major groups between 1984 and 1990 while OASE increased for 17 of the 21 groups.

Growth in paid-employment was particularly robust in the 1984-90 expansionary period and consequently, despite the strong growth in self-employment, the proportion of self-employed in overall employment grew only slightly. The share of ESE grew by 45 basis points while the share of OASE grew by 11 basis points. About a third of the growth in ESE is due to compositional effects and two thirds to an increase in incidence. For OASE, all the growth is due to incidence, as the change in the composition would have reduced the importance of OASE by some 16 basis points. The relative strength of incidence in the OASE sub-class, along with its more widespread influence across all occupations, supports the argument that the growing

[20] Strong growth is defined here as one standard deviation above the average growth while weak growth is growth below one standard deviation.

importance of OASE was a systemic phenomenon in the Canadian economy in the 1980's, much more than for ESE.

Turning to the 1990-96 period, overall employment in the ESE sub-class was essentially flat, as for paid-employment. It is the first episode of stagnation for this sub-class of self-employment since 1976. As we have seen in section 3, except for the most recent period, ESE showed little correlation to paid-employment patterns at the aggregate level. Is the slowing of growth in ESE and paid-employment a coincidence or is it related somehow? It is possible that the slowing in ESE growth may be due to the slowing in employment growth in some occupations where ESE is important, without much change or even a rise in the incidence of self-employment in other occupations. Conversely, perhaps the slowing in ESE is unrelated with what happened to the composition of employment and reflects other factors, possibly exogenous to the cyclical downturn, thereby altering the incidence of self-employment in specific occupations.

The decomposition of the change in the share of ESE in overall employment indicates that the change in the composition of employment contributed to increase the share of ESE over the 1990-96 period while incidence contributed to decrease it, for an overall fall of only 5 basis points (Table 9). Summing up the absolute values of the occupational changes in incidence (95 basis points) and composition (30 basis points) suggests that movements in incidence were more important than composition movements over the period. This is confirmed by examining the detailed occupational changes. At the 2-digit occupational level, growth in ESE slowed in about half of the 21 groupings between the two periods 1984-90 and 1990-96 while it increased in the other half. In paid-employment, the growth slowdown was more broadly based with 18 of the major groups registering lower growth. The level of ESE fell in 7 of the major groups between 1990 and 1996 while it fell in 9 for paid-employees (neglecting religion). Only 3 major groups exhibited a drop in the level of both paid-employment and ESE in recent years: fishing, farming and construction. The share of ESE in occupational employment increased in 13 of the 21 major groups between 1990 and 1996 and fell in six of them. At the minor group level, it is interesting to note that in virtually all the occupations where the growth in paid-employment increased during the most recent period (13 minor groups), ESE growth also rose. But ESE growth also rose in some 20 minor groups where paid-employment growth weakened or employment fell in recent years. Indeed, among the 3-digit minor groups where paid-employment actually fell

between 1990 and 1996 (about half the total 3-digit groups), growth in ESE rose in 40 per cent of the cases. Nevertheless, in about 65 per cent of the 3-digit occupational groups, the change in growth between paid-employment and ESE between the two sub-periods went in the same direction; suggesting some positive correlation between the slowdown of employment and the slowdown of ESE over the 1990-96 period.

Table 9
Decomposition of Change in ESE by Occupation

2-Digit SOC Occupations	Share of ESE in Total Employment (%)			Percentage Point Change in Share Due to:								
				Total			Composition			Incidence		
	1984	1990	1996	84-90	90-96	84-96	84-90	90-96	84-96	84-90	90-96	84-96
Total	5.82	6.28	6.23	0.45	-0.05	0.41	0.15	0.11	0.28	0.28	-0.10	0.26
Managerial	0.93	1.49	1.14	0.55	-0.34	0.21	0.19	0.11	0.28	0.30	-0.42	-0.05
Natural Sciences	0.12	0.13	0.12	0.01	-0.01	0.00	0.00	0.01	0.01	0.01	-0.02	-0.01
Social Sciences	0.19	0.20	0.20	0.01	0.00	0.01	0.04	0.03	0.07	-0.02	-0.02	-0.04
Religion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Teaching	0.02	0.02	0.03	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01
Medicine	0.39	0.34	0.42	-0.06	0.08	0.02	0.01	0.03	0.04	-0.07	0.05	-0.02
Artistic	0.13	0.13	0.15	0.00	0.02	0.02	0.02	0.03	0.05	-0.01	-0.01	-0.02
Clerical	0.12	0.17	0.18	0.05	0.01	0.06	0.00	-0.02	-0.02	0.05	0.04	0.09
Sales	1.34	1.13	1.21	-0.20	0.08	-0.12	0.02	0.05	0.07	-0.21	0.03	-0.18
Service	0.61	0.60	0.70	-0.01	0.10	0.09	-0.02	0.03	0.01	0.01	0.06	0.08
Farming	0.57	0.56	0.53	-0.01	-0.03	-0.04	-0.12	-0.01	-0.13	0.14	-0.02	0.12
Fishing	0.05	0.09	0.07	0.03	-0.01	0.02	0.00	-0.02	-0.01	0.03	0.01	0.04
Forestry	0.04	0.04	0.04	0.01	0.00	0.00	-0.01	0.00	-0.01	0.03	-0.01	0.02
Mining	0.02	0.02	0.03	0.00	0.02	0.01	0.00	0.00	-0.01	0.00	0.02	0.02
Processing & Rel.	0.08	0.06	0.08	-0.02	0.02	0.00	-0.01	-0.01	-0.02	-0.01	0.03	0.02
Machining & Rel.	0.05	0.05	0.05	0.00	0.00	0.00	-0.01	0.00	-0.01	0.00	0.01	0.01
Product Fabricating	0.34	0.33	0.39	-0.01	0.06	0.05	-0.02	0.00	-0.03	0.02	0.06	0.08
Construction	0.57	0.70	0.63	0.13	-0.08	0.05	0.08	-0.11	-0.02	0.04	0.04	0.08
Transportation	0.16	0.16	0.19	0.00	0.03	0.03	0.00	0.00	0.01	0.00	0.03	0.02
Material Handling	0.02	0.01	0.01	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	-0.01
Other Crafts	0.05	0.03	0.04	-0.01	0.01	0.00	0.00	0.00	-0.01	-0.01	0.01	0.00

We have to conclude that although there is evidence that the business cycle and weak employment growth played some role in the slow growth of ESE over the 1990-96 period (such as in construction occupations for example), more complex and indirect factors were also at play. This is reflected in the diverging trends between paid-employment and ESE over recent years. Note that the slowdown in ESE may be related to the weak overall employment growth in a way that cannot be captured using the simple techniques within this study. The case of management occupations is worth noting since a significant change of situation for ESE between 1984-90 and 1990-96 periods occurred in this major group. Over the 1990-96 period, there was a 5.0 per cent average per annum drop in the number of ESE working in management occupations (3-digit level). During the 1980's, ESE grew by 11.2 per cent per annum on average in that very same

occupational group. The drop in ESE management is the largest absolute fall for this sub-class of self-employment over the period. This occurs in spite of the fact that paid-employment increased 2.4 per cent per annum in this occupation and OASE grew by 5.0 per cent. In absolute terms, ESE managers fell by 44,000 over the entire 1990-96 period, while they increased by 3,000 in OASE and by 143,000 for paid-employees. Assuming that ESE in management occupations had kept its share of managers constant between 1990 and 1996 (no change in incidence instead of an actual fall), ESE would have grown by 1.8 per cent per year instead of 0.5 per cent. The fall in ESE managerial employment is possibly related to the particularly high level of business bankruptcies since the early 1990's although this trend is totally opposite for the managing supervisor groups where most of the working owners of small establishments are classified. An examination of 4-digit data suggests that these trends in managers and managing supervisors are affecting many unit groups.[21]

In contrast to ESE patterns, employment in the OASE sub-class accelerated over the 1990-96 period. Growth increased in 15 of the 21 major occupational groups between the 1990-96 and 1984-90 periods and the share of OASE in occupational employment increased for 20 of the 21 major groups (all but religion where there is no self-employment). At the 3-digit minor group level, where paid-employment fell over the 1990-96 period, growth in OASE increased in 66 per cent of the cases; making the OASE negatively correlated with paid-employment. This strongly suggests that a proportion of the increase in OASE is constituted of individuals previously working as paid-employees. The largest occupational contributors to the overall growth in OASE over the 1990-96 period (similar for the 1984-96) are sales (with substantial acceleration in sales of commodities[22]), service (widespread across 3-digit), managerial (or, more precisely, related to managerial), artistic (mainly recreation) and natural science occupations (mainly systems analysts). Those five groups accounted for about 70 per cent of the overall growth in OASE, of which some 77 per cent resulted from an increase in incidence and 17 per cent from a shift in the composition of employment.

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[21] The converse pattern can be observed over the 1984-90 period. Over that period ESE managing supervisors stalled whereas managers grew strongly.

[22] Commodity sales occupational group shows a strong negative correlation between paid-employment and both self-employment sub-classes over the period 1984-96. When paid-employment is strong, self-employment is weak and when paid-employment is weak, self-employment expands strongly.

Most of the growth in OASE, as shown in Table 10, is due to an increase in the incidence (90%). The extent to which this increase is attributable to the cyclical weakness of paid-employment (and likely to be reversed, at least partly, as paid-employment picks up) is not easy to determine. Assuming that all the extra growth in OASE over the 1990-96 period (relative to trend growth) is permanent, we would expect the share of OASE to stabilize at about 9.2 per cent of employment when paid-employment has fully recovered -- about 0.7 basis points below its level in 1996. Of course, we do not know for certain if the trend towards OASE is about to end. The evidence reported in this section suggests that a portion of the growth in self-employment is related to the weakness of paid-employment. Given the recent increase in employment and expectations of more to come, OASE growth could be slower in the future. In addition, we do not know if all the extra growth in OASE is permanent. There is certainly evidence that employees are being hired once again along with the conclusion of institutional restructuring. For many self-employed workers, this may be an opportunity to get back on payroll.

We do not know much about the transitions between ESE and OASE. Transitions from OASE to ESE may occur with increases in business, as self-employed workers hire paid help to meet their requirements; conversely, when business is slowing, self-employed workers with paid help may transfer to the OASE sub-class.[23] This pattern is consistent with what happened in recent years but not with the 1981-82 recession. Flows from paid-employment to self-employment must be dominating during downturns. Comparing the average growth in 1990-96 with growth over the 1980's in ESE and OASE, one finds that in about half of the 3-digit groupings, growth went in the same direction (slowed or increased). In about 25 per cent of the 3-digit groupings, the level of self-employment went in the same direction over the period 1990-96.

[23] It is unfortunate that the Survey of Labour Income Dynamics of Statistics Canada does not provide the necessary information for these transitions to be observed.

Table 10
Decomposition of Change in OASE by Occupation

2-Digit SOC Occupations	Share of OASE in Total Employment (%)			Percentage Point Change in Share Due to:								
				Total			Composition			Incidence		
	1984	1990	1996	84-90	90-96	84-96	84-90	90-96	84-96	84-90	90-96	84-96
Total	7.45	7.56	9.92	0.11	2.36	2.47	-0.16	0.19	-0.02	0.22	2.12	2.30
Managerial	0.16	0.27	0.55	0.12	0.28	0.40	0.03	0.02	0.05	0.07	0.24	0.27
Natural Sciences	0.15	0.22	0.40	0.07	0.19	0.26	0.00	0.02	0.02	0.06	0.16	0.22
Social Sciences	0.06	0.07	0.13	0.01	0.06	0.07	0.01	0.01	0.02	0.00	0.04	0.04
Religion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Teaching	0.12	0.13	0.19	0.01	0.06	0.07	0.00	0.01	0.01	0.01	0.04	0.05
Medicine	0.10	0.14	0.23	0.04	0.08	0.13	0.00	0.01	0.01	0.04	0.07	0.10
Artistic	0.38	0.51	0.77	0.14	0.25	0.39	0.05	0.12	0.14	0.08	0.11	0.18
Clerical	0.12	0.13	0.20	0.01	0.07	0.09	0.00	-0.02	-0.02	0.02	0.11	0.13
Sales	1.28	1.33	1.79	0.04	0.46	0.51	0.02	0.05	0.07	0.03	0.39	0.42
Service	1.52	1.39	1.85	0.12	0.46	0.34	-0.05	0.07	0.03	-0.08	0.37	0.31
Farming	1.89	1.53	1.58	-0.36	0.05	-0.30	-0.40	-0.03	-0.43	0.06	0.09	0.17
Fishing	0.13	0.10	0.09	-0.03	-0.01	-0.04	0.00	-0.02	-0.02	-0.03	0.01	-0.02
Forestry	0.05	0.05	0.05	-0.01	0.02	0.00	-0.02	0.00	-0.01	0.02	0.00	0.02
Mining	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.01
Processing & Rel.	0.02	0.02	0.04	0.00	0.02	0.01	0.00	0.00	-0.01	0.00	0.02	0.03
Machining & Rel.	0.05	0.05	0.08	0.00	0.03	0.03	-0.01	0.00	-0.01	0.01	0.04	0.05
Product Fabricating	0.38	0.35	0.52	-0.03	0.18	0.14	-0.03	0.00	-0.03	-0.01	0.18	0.19
Construction	0.63	0.81	0.92	0.18	0.11	0.29	0.09	-0.13	-0.03	0.08	0.28	0.33
Transportation	0.38	0.40	0.43	0.01	0.04	0.05	0.01	0.00	0.01	0.00	0.03	0.03
Material Handling	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Crafts	0.02	0.04	0.06	0.01	0.03	0.04	0.00	0.00	0.00	0.02	0.03	0.05

What have we learned from this examination of trends between OASE and ESE? *First*, although both sub-classes of self-employment have the bulk of their workers in the same 5 major occupational groups (managerial, sales, services, construction and farming), the 3-digit analysis reveals that they often are composed of workers with different occupational skills. *Second* although ESE grew somewhat faster than OASE during the period 1984 to 1990, the growth in OASE workers was much more widespread across occupational groups than for ESE workers. This, along with the stronger effect of incidence for the OASE sub-class, suggests that forces driving the growth of OASE were more systemic than those driving ESE. *Third*, only a small portion of the slowdown in ESE growth over the 1990-96 period can be directly attributed to the weakening of overall employment growth. The fall in the incidence of ESE management occupations had a large effect on the overall slowdown of ESE in recent years. *Fourth*, the faster growth in OASE over the 1990-96 period seems to be highly correlated (negatively) with paid-employment. Assuming that the extra growth in OASE over recent years will not be reversed, the expected pick up in paid-employment over the coming years will reduce the share of OASE in employment from 9.9 to 9.2 per cent.

5. Trends in Industry Self-Employment

As found in the occupational analysis, some industries have a higher proportion of self-employment than others. Various factors are at play. In some industries formerly characterized by self-employment (such as in real estate and restaurants), there has been a trend towards larger-scale business organizations. On the other hand, we see self-employed workers flourishing in some manufacturing industries where paid-employment used to be the only form of employment. Self-employment represents a larger proportion of total employment in the goods-producing industries than in the service-producing industries so that, everything else remaining constant, the trend towards service-producing industries should contribute to *reduce* the share of self-employment in the economy. Of course other things such as social reforms, fluctuations in the economic activity and technological innovations may also have contributed to changes in the industrial distribution of self-employment over time.

The goal of this section, as with the previous one for occupations, is not to explain or find out why some industries tend to have more self-employed workers than others. Rather, it describes how the industrial structure has changed over time and how these changes in composition may have affected the importance of self-employment in the overall economy. Some emphasis is put on the role of the business cycle and how the industrial structure has evolved between ESE and OASE, especially over recent years.

5.1 Total Self-Employment by Industry

As with the occupational make up, the industrial composition of self-employment is concentrated relative to paid-employment (Table 11). For example, in 1996, approximately 67 per cent of self-employed workers were within the following five major industry divisions (the Standard Industrial Classification distinguishes 18 major divisions): other service (16.6%), retail trade (13.5%), business service (13.2%), agricultural (12.5%) and construction (11.3%). These five divisions constituted some 71 per cent of self-employment in 1984. Total employment in the same five divisions represented some 36 per cent of economy-wide employment in 1996 (34% in 1984). The fall in the proportion of self-employment in agriculture -- from 18 per cent in 1984 to 12.5 per cent in 1996 -- was mainly responsible for the fall in self-employment within this group of five major industrial divisions between 1984 and 1996.

Table 11
Self-Employment by Industry

Major SIC Industry Divisions	SE (000's)			Employment (000's)			Share of Total SE (%)			Share of Empl. (%)			SE Growth (%)*		
	1984	1990	1996	1984	1990	1996	1984	1990	1996	1984	1990	1996	84-90	90-96	84-96
Total	1,513.8	1,821.9	2,208.9	11,402.1	13,164.8	13,675.9	100.0	100.0	100.0	13.3	13.8	16.2	3.1	3.3	3.2
Agricultural & Related	273.0	263.5	276.0	491.4	440.7	453.3	18.0	14.5	12.5	55.6	59.8	60.9	-0.6	0.8	0.1
Fishing & Trapping	21.0	25.3	22.8	34.6	42.6	35.6	1.4	1.4	1.0	60.7	59.4	63.9	3.2	-1.7	0.7
Logging & Forestry	11.4	13.8	13.8	77.4	67.2	76.0	0.8	0.8	0.6	14.7	20.5	18.2	3.2	0.1	1.6
Mining & Quarrying	6.1	6.1	8.5	185.7	187.8	168.3	0.4	0.3	0.4	3.3	3.2	5.1	-0.2	5.9	2.8
Manufacturing	75.6	82.7	110.3	2,046.2	2,105.3	2,082.4	5.0	4.5	5.0	3.7	3.9	5.3	1.5	4.9	3.2
Construction & Related	170.0	244.2	250.5	591.5	824.0	718.6	11.2	13.4	11.3	28.7	29.6	34.9	6.2	0.4	3.3
Transport & Storage	62.4	71.3	80.0	497.5	535.7	553.2	4.1	3.9	3.6	12.5	13.3	14.5	2.2	2.0	2.1
Communication & Utilities	6.7	11.8	16.1	390.8	459.6	466.4	0.4	0.6	0.7	1.7	2.6	3.4	9.8	5.3	7.5
Wholesale Trade	69.8	99.0	113.1	508.4	618.0	633.6	4.6	5.4	5.1	13.7	16.0	17.8	6.0	2.2	4.1
Retail Trade	263.6	271.0	298.9	1,494.5	1,737.6	1,727.6	17.4	14.9	13.5	17.6	15.6	17.3	0.5	1.6	1.1
Finance & Other Insurance	7.9	8.8	15.4	456.2	519.5	522.4	0.5	0.5	0.7	1.7	1.7	2.9	1.8	9.7	5.7
Insurance & Real Estate	42.1	71.0	95.6	205.4	270.8	277.5	2.8	3.9	4.3	20.5	26.2	34.5	9.1	5.1	7.1
Business Service	115.1	185.3	292.3	478.2	736.2	918.6	7.6	10.2	13.2	24.1	25.2	31.8	8.3	7.9	8.1
Government Service	0.0	0.0	0.0	821.9	869.0	820.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Educational Service	14.3	18.1	27.8	752.7	863.3	929.0	0.9	1.0	1.3	1.9	2.1	3.0	3.9	7.4	5.7
Health & Social Service	61.7	82.1	124.8	964.9	1,202.3	1,352.3	4.1	4.5	5.7	6.4	6.8	9.2	4.9	7.2	6.0
Accommodation & Food	64.4	77.3	96.4	635.3	807.7	892.9	4.3	4.2	4.4	10.1	9.6	10.8	3.1	3.8	3.4
Other Service	248.6	290.8	366.5	770.0	877.9	1,048.4	16.4	16.0	16.6	32.3	33.1	35.0	2.6	3.9	3.3

*Average annual growth rates

Over the 1984-96 period, average annual growth in self-employment (3.2%) was particularly strong within the following major divisional groups: business service (8.1%), communication and utilities (7.5%), insurance and real estate (7.1%), health and social service (6.1%), finance and other insurance (5.7%), and educational service (5.7%). Overall, the growth of these 6 industrial groups accounted for about 47 per cent of the total growth in self-employment (324,000 workers). Percentage growth rates of self-employment in other service and in construction were not as high (3.3 % for both) but, in absolute terms, these two groups accounted for about 29 per cent of the total growth in self-employment (200,000 workers). Growth was relatively weak in retail trade (1.1%) and within most primary industries: agriculture (0.1%), fishing and trapping (0.7%), and logging and forestry (1.7%). At the 2- and 3-digit Standard Industrial Classification levels (SIC), growth was particularly rapid for computer services (16.8%), day care (15.4%), management consultants (12.8%), employment agencies (12.8%), private social services (12.7%), advertising services (11.5%), communication (9.6%), chemicals (8.1%), services to construction (7.1%) and insurance and real estate (7.1%).[24]

[24] Detailed industry self-employment data are not shown but can be made available by request.

Growth in paid-employment over the 1984-96 period (1.2%) was relatively strong in business service (4.7%), accommodation and food (2.8%), health and social service (2.6%), and other service (2.3%).[25] Growth in these four major divisions accounted for over 60 per cent of the growth in total paid-employment over this period. Growth was weak in transportation and storage, and in manufacturing, while paid-employment fell in all primary industries. Growth was about average in the other remaining industries, such as communication and utilities, wholesale and retail trade, construction, and in education. Therefore, at the divisional level and very broadly speaking, growth in paid- and self-employment was consistently strong or weak relative to their average within similar industries. Mining, manufacturing, retail trade, insurance and real estate showed larger differences in trends. Among the 2- or 3-digit SIC industries, where self-employment grew strongly over the 1984-96 period, growth was also strong in paid-employment for some industries (e.g., computer services, day care, management consultants) and weak in others (e.g., chemicals, services to construction, insurance and real estate). Diverging trends between paid- and self-employment are more evident by examining a finer breakdown of industries. Actually, among the sixty 2-digit SIC industry groups, growth in paid- and self-employment over the 1984-96 period diverged in sign in 24 groups (40% of the industries). This means that where self-employment in these industries was rising (falling), paid-employment was falling (rising). These diverging trends in the level of employment between classes are concentrated in declining or relatively stagnant industries. For most of these industries, the incidence of self-employment has been growing. The overview therefore for the 1984-96 period is as follows: where employment has been strong, both self-employment and paid-employment have grown (although at a faster pace for the former class); and, where employment has been weak or falling, both self-employment and paid-employment have been relatively weak (although less weak for the former class).[26]

Although the growth rate of self-employment has been relatively stable between the two periods 1984-90 and 1990-96, the trends for many industries have diverged considerably. The growth rate in self-employment has increased significantly in half of the 18 major industry divisions in the most recent period and has fallen in 7. Agriculture, mining, manufacturing, retail trade,

[25] Data for paid-employment are not shown but can be made available by request.

[26] As for occupations, in stagnant or declining industries, trends in employment by class diverge in sign (i.e., one declining and one increasing) because there is a clustering of the distribution of growth by industry around zero.

finance and other insurance, education, health and social service, accommodation and food service, and in other service, have all exhibited an increase in growth. Alternatively, decreases have occurred for fishing and trapping, logging and forestry, construction, transportation and storage, communication and utilities, wholesale trade, and insurance and real estate. For paid-employment, almost all industry divisions have shown reduced growth between the two periods, resulting in a substantial increase in the proportion of self-employment as a share of industry employment. Looking at the 2-digit SIC industries, growth in self-employment rose in half of the industries (as for the division aggregation) while for paid-employment, growth rose in about one-third. Comparing the performance between the two classes of workers, in half of the 2-digit groups, growth between self-employment and paid-employment took diverging directions (i.e., falling in one class and increasing in the other) and in one-fourth of the 2-digit SIC industries, the *fall* in the number of paid-employees between the two periods was accompanied by an *increase in the growth* of self-employment. These diverging trends between paid- and self-employment occurred, for example, in construction, where paid-employment fell by 111,000 and self-employment increased by 6,000 and retail trade, where paid-employment fell by 38,000 and self-employment rose by 35,000. The large number of industries where trends have diverged between the two classes of workers suggests some significant negative correlation between paid- and self-employment across the various phases of the most recent business cycles.

Self-employment constitutes a significant proportion of employment in some industries. In 1996, it comprised 63.9 per cent of fishing and trapping, 60.9 per cent of agriculture, 35.0 per cent of other service, 34.5 per cent of insurance and real estate, 34.9 per cent of construction and 31.8 per cent of business service. At a less aggregated level, some business service, and health and social service industries also comprise a relatively large share of self-employed workers. The most notable within these industries are: private social services (91.8%), management consultants (60.9%), accounting services (42%), advertising services (40.8%), doctors and dentists (34.1%) and computer services (29.5%).

As a share of industrial employment, the proportion of self-employment grew from 1984 to 1996 in virtually all the major industry divisions. In addition, even for those industries that exhibited a decreasing share of self-employment to industry employment from 1984 to 1990 -- retail trade, and in accommodation and food services -- the proportion of self-employment rose over the

1990-96 period. Among industries where total employment fell over the 1984-96 period -- agriculture, logging and forestry, and mining -- the number of self-employed workers continued to grow in absolute terms. The importance of self-employment in industrial employment has been widespread and growing over the past 12 years. At the 2-digit SIC level, almost half (25) of the industry groups had more than 10 per cent of their work force composed of self-employment in 1996.

The fact that self-employment has become more significant in most industry groups suggests that, as for the occupational analysis done in the previous section, a large proportion of the growth in the share of self-employment in overall employment is attributable to an increase in *incidence*. Indeed, decomposition results show that of the 2.9 percentage point increase in the proportion of self-employment in total employment over the 1984-96 period, about 2.3 points are attributable to an increase in incidence (80%) and 0.4 to a change in the industry composition (Table 12). Hence, although less important than for the occupational decomposition, the higher incidence of self-employment is also the main driver of growth across industries.

Table 12
Decomposition of Change in Self-Employment by Industry

Major SIC Industry Divisions	Share of SE in Total Employment (%)			Percentage Point Change in Share Due to:								
				Total			Composition			Incidence		
	1984	1990	1996	84-90	90-96	84-96	84-90	90-96	84-96	84-90	90-96	84-96
Total	13.28	13.84	16.15	0.56	2.31	2.88	0.15	0.21	0.35	0.42	2.07	2.33
Agricultural & Related	2.39	2.00	2.02	-0.39	0.02	-0.38	-0.53	-0.02	-0.55	0.18	0.04	0.23
Fishing & Trapping	0.18	0.19	0.17	0.01	-0.03	-0.02	0.01	-0.04	-0.03	0.00	0.01	0.01
Logging & Forestry	0.10	0.10	0.10	0.00	0.00	0.00	-0.02	0.01	-0.02	0.04	-0.01	0.02
Mining & Quarrying	0.05	0.05	0.06	-0.01	0.02	0.01	-0.01	-0.01	-0.01	0.00	0.03	0.03
Manufacturing	0.66	0.63	0.81	-0.03	0.18	0.14	-0.07	-0.03	-0.10	0.04	0.22	0.29
Construction & Related	1.49	1.86	1.83	0.36	-0.02	0.34	0.31	-0.30	0.02	0.05	0.33	0.32
Transport & Storage	0.55	0.54	0.59	-0.01	0.04	0.04	-0.04	0.00	-0.04	0.03	0.05	0.08
Communication & Utilities	0.06	0.09	0.12	0.03	0.03	0.06	0.00	0.00	0.00	0.03	0.03	0.06
Wholesale Trade	0.61	0.75	0.83	0.14	0.08	0.22	0.03	-0.01	0.02	0.10	0.09	0.18
Retail Trade	2.31	2.06	2.19	-0.25	0.13	-0.13	0.02	-0.09	-0.08	-0.27	0.23	-0.04
Finance & Other Insurance	0.07	0.07	0.11	0.00	0.05	0.04	0.00	0.00	0.00	0.00	0.05	0.05
Insurance & Real Estate	0.37	0.54	0.70	0.17	0.16	0.33	0.05	-0.01	0.05	0.10	0.17	0.25
Business Service	1.01	1.41	2.14	0.40	0.73	1.13	0.34	0.28	0.61	0.05	0.37	0.33
Government Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Educational Service	0.13	0.14	0.20	0.01	0.07	0.08	0.00	0.00	0.00	0.01	0.06	0.07
Health & Social Service	0.54	0.62	0.91	0.08	0.29	0.37	0.04	0.05	0.09	0.04	0.22	0.24
Accommodation & Food	0.57	0.59	0.71	0.02	0.12	0.14	0.06	0.04	0.10	-0.03	0.08	0.04
Other Service	2.18	2.21	2.68	0.03	0.47	0.50	-0.03	0.33	0.29	0.06	0.12	0.18

It is interesting to explore briefly the decomposition results for some industries (Table 12). The industry divisions that have seen their share of self-employment in total employment grow the most over the 1984-96 period include: business service, other service, health and social service, construction, insurance and real estate, and wholesale trade. The share of these six industry divisions grew 2.9 percentage points over the period (100% of the total increase). About 37 per cent of that growth was due to composition effects (mainly in business and other services). The largest drop occurred in agriculture and in retail trade with a total contraction of 51 basis points, all of it related to a decline in the importance of these industries' employment in total employment (composition effect).

Focusing on the 1990-96 period, over which most of the rise in the importance of self-employment happened, the largest increases occurred in business service (computer and accountant services as well as for management consultants), other services (personal plus amusement and recreation) and health and social service (day care). Some 44 per cent of this growth is attributable to composition effects. The share of self-employment over this period did not decline significantly in any industry. The slow-growing construction industry has contributed to a decrease in the share of self-employment by some 30 basis points in recent years, but this has been offset by gains in incidence. The industries that have grown significantly in terms of overall employment have contributed to pull up the share of self-employment (composition effects). In all fast growing industries over recent years, self-employment has also grown rapidly. As indicated by the overall decomposition effects, in many industries that have not grown particularly fast, self-employment has nevertheless increased rapidly (incidence effects). Indeed, in the thirty 2-digit industries where paid-employment fell over the 1990-96 period (and where self-employment was present in 1990), self-employment rose in 19 of them (63%). Among the 2-digit industries where self-employment fell (12 of them), paid-employment also fell in 8 of them. Only 4 of the 2-digit industries saw at the same time a rise in total employment and a fall in self-employment over the 1990-96 period.

Summarizing the highlights for this sub-section, we have: *First*, the self-employed are concentrated within a relatively small number of broad industry groups such as retail trade, personal service, business service, agriculture and construction. *Second*, for those industries where employment has been strong over the 1984-96 period, both self-employment and paid-employment have grown (although at a faster pace for the former class) and where

employment has been weak or falling, both self-employment and paid-employment have been weak (although less weak for the former class). There is therefore some positive correlation between employment in the two classes of worker at the industrial level. *Third*, an examination of the trends across classes of work over two different phases of the business cycle (1984-90 and 1990-96) suggests some significant negative correlation between paid- and self-employment across cyclical phases. *Fourth*, 80 per cent of the net gains made by self-employment in overall employment over the past 12 years were made through an increase in incidence while 20 per cent were due to a change in the industrial composition of employment. Compositional effects are nevertheless important for many industrial groups. *Fifth*, a significant portion of the increase in the incidence of self-employment over recent years -- and therefore in the share of self-employment -- is related to the cyclical weakness in paid-employment and should be reversed over the coming years.

5.2 Own-Account and Employers Classes by Industry

Although perhaps less than for occupations, there are considerable differences in the industrial distribution of OASE and ESE. The simple correlation coefficient between the industrial composition of OASE and ESE at the 2-digit SIC level is relatively large (0.79). However, in 55 per cent of industries, one of the shares is at least twice as large as the other. As with the occupational space, the industrial distribution of ESE is much flatter than the distribution of OASE.

In 1996, both OASE and ESE had about 50 per cent of employment in the following major groups: business service, agriculture, retail trade and construction (Tables 13 and 14). Construction and retail trade industries had a larger proportion of ESE whereas business service and agriculture had a higher proportion of OASE. The distribution of the remaining self-employment across industries was somewhat less concentrated within ESE than OASE. Around 30 per cent of ESE workers were spread evenly in the industry groups of: other service, manufacturing, accommodation and food, and in health and social service; while OASE, which also had about 30 per cent of employment, was largely concentrated in other service.

Table 13
ESE by Industry

Major SIC Industry Divisions	ESE (000's)			Employment (000's)			Share of Total ESE (%)			Share of Empl. (%)			ESE Growth (%)*		
	1984	1990	1996	1984	1990	1996	1984	1990	1996	1984	1990	1996	84-90	90-96	84-96
Total	664.0	826.4	852.2	11,402.1	13,164.8	13,675.9	100.0	100.0	100.0	5.8	6.3	6.2	3.7	0.5	2.1
Agricultural & Related	65.4	72.1	74.0	491.4	440.7	453.3	9.8	8.7	8.7	13.3	16.4	16.3	1.6	0.4	1.0
Fishing & Trapping	6.2	11.7	10.7	34.6	42.6	35.6	0.9	1.4	1.3	18.1	27.6	30.0	11.1	-1.6	4.6
Logging & Forestry	5.4	7.4	6.7	77.4	67.2	76.0	0.8	0.9	0.8	6.9	11.0	8.8	5.5	-1.7	1.8
Mining & Quarrying	4.8	4.8	5.2	185.7	187.8	168.3	0.7	0.6	0.6	2.6	2.5	3.1	-0.1	1.3	0.6
Manufacturing	57.0	62.4	68.0	2,046.2	2,105.3	2,082.4	8.6	7.6	8.0	2.8	3.0	3.3	1.5	1.4	1.5
Construction & Related	90.0	128.4	112.3	591.5	824.0	718.6	13.6	15.5	13.2	15.2	15.6	15.6	6.1	-2.2	1.9
Transport & Storage	21.6	25.6	28.2	497.5	535.7	553.2	3.2	3.1	3.3	4.3	4.8	5.1	2.9	1.7	2.3
Communication & Utilities	3.2	4.0	5.6	390.8	459.6	466.4	0.5	0.5	0.7	0.8	0.9	1.2	3.6	6.0	4.8
Wholesale Trade	43.7	60.1	60.0	508.4	618.0	633.6	6.6	7.3	7.0	8.6	9.7	9.5	5.4	0.0	2.7
Retail Trade	138.9	153.7	149.8	1,494.5	1,737.6	1,727.6	20.9	18.6	17.6	9.3	8.8	8.7	1.7	-0.4	0.6
Finance & Other Insurance	5.4	3.5	7.4	456.2	519.5	522.4	0.8	0.4	0.9	1.2	0.7	1.4	-6.9	13.2	2.7
Insurance & Real Estate	23.1	28.8	27.1	205.4	270.8	277.5	3.5	3.5	3.2	11.3	10.6	9.8	3.7	-1.0	1.3
Business Service	61.6	88.4	98.5	478.2	736.2	918.6	9.3	10.7	11.6	12.9	12.0	10.7	6.2	1.8	4.0
Government Service	0.0	0.0	0.0	821.9	869.0	820.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Educational Service	2.0	2.0	4.0	752.7	863.3	929.0	0.3	0.2	0.5	0.3	0.2	0.4	0.1	11.9	5.8
Health & Social Service	43.7	46.5	56.0	964.9	1,202.3	1,352.3	6.6	5.6	6.6	4.5	3.9	4.1	1.0	3.1	2.1
Accommodation & Food	48.3	60.9	73.0	635.3	807.7	892.9	7.3	7.4	8.6	7.6	7.5	8.2	3.9	3.1	3.5
Other Service	43.6	66.1	65.8	770.0	877.9	1,048.4	6.6	8.0	7.7	5.7	7.5	6.3	7.2	-0.1	3.5

*Average annual growth rates

Differences between the two sub-classes of self-employment are revealed more clearly through an examination of the 2- and 3-digit minor industrial groups in 1996. For example, in retail trade industries, ESE workers were concentrated in automotive, other retail trades, and in food and drug retail, while OASE workers were mostly concentrated within other retail trades. In business services, ESE workers were mainly lawyers while, for OASE, they were distributed evenly among management consultants, other service to business, computer services, accounting services and advertising services. In health and social service, the OASE workers consisted mostly of day care workers as well as doctors and dentists while ESE workers were almost exclusively doctors and dentists.[27]

For the 1984-90 period, we find that growth within the industry distribution differs significantly, in spite of the apparent similarity in general growth patterns between OASE and ESE (Tables 13 and 14). Relative to the class average, growth was strong for 8 of the 18 industry divisions in OASE and for 6 in ESE. In 3 of these divisions, self-employment was strong for

[27] Detailed industry data are not shown but can be made available by request.

Table 14
Own-Account Self-Employment by Industry

Major SIC Industry Divisions	OASE ('000's)			Employment ('000's)			Share of Total OASE (%)			Share of Empl. (%)			OASE Growth (%)		
	1984	1990	1996	1984	1990	1996	1984	1990	1996	1984	1990	1996	84-90	90-96	84-96
Total	849.8	995.6	1,356.8	11,402.1	13,164.8	13,675.9	100.0	100.0	100.0	7.5	7.6	9.9	2.7	5.3	4.0
Agricultural & Related	207.6	191.4	202.0	491.4	440.7	453.3	24.4	19.2	14.9	42.3	43.4	44.6	-1.4	0.9	-0.2
Fishing & Trapping	14.7	13.6	12.1	34.6	42.6	35.6	1.7	1.4	0.9	42.6	31.9	34.0	-1.4	-1.9	-1.6
Logging & Forestry	6.0	6.4	7.2	77.4	67.2	76.0	0.7	0.6	0.5	7.8	9.5	9.5	1.0	2.0	1.5
Mining & Quarrying	1.3	1.3	3.4	185.7	187.8	168.3	0.2	0.1	0.2	0.7	0.7	2.0	-0.2	17.2	8.1
Manufacturing	18.6	20.3	42.2	2,046.2	2,105.3	2,082.4	2.2	2.0	3.1	0.9	1.0	2.0	1.4	13.0	7.1
Construction & Related	80.0	115.8	138.2	591.5	824.0	718.6	9.4	11.6	10.2	13.5	14.1	19.2	6.4	3.0	4.7
Transport & Storage	40.8	45.7	51.8	497.5	535.7	553.2	4.8	4.6	3.8	8.2	8.5	9.4	1.9	2.1	2.0
Communication & Utilities	3.5	7.8	10.4	390.8	459.6	466.4	0.4	0.8	0.8	0.9	1.7	2.2	14.2	4.9	9.5
Wholesale Trade	26.0	38.9	53.1	508.4	618.0	633.6	3.1	3.9	3.9	5.1	6.3	8.4	6.9	5.3	6.1
Retail Trade	124.7	117.3	149.2	1,494.5	1,737.6	1,727.6	14.7	11.8	11.0	8.3	6.8	8.6	-1.0	-1.1	1.5
Finance & Other Insurance	2.5	5.3	8.0	456.2	519.5	522.4	0.3	0.5	0.6	0.6	1.0	1.5	13.2	7.1	10.1
Insurance & Real Estate	19.0	42.2	68.5	205.4	270.8	277.5	2.2	4.2	5.0	9.2	15.6	24.7	14.2	8.4	11.3
Business Service	53.5	96.9	193.8	478.2	736.2	918.6	6.3	9.7	14.3	11.2	13.2	21.1	10.4	12.3	11.3
Government Service	0.0	0.0	0.0	821.9	869.0	820.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Educational Service	12.3	16.1	23.9	752.7	863.3	929.0	1.5	1.6	1.8	1.6	1.9	2.6	4.5	6.8	5.6
Health & Social Service	18.0	35.6	68.8	964.9	1,202.3	1,352.3	2.1	3.6	5.1	1.9	3.0	5.1	12.1	11.6	11.8
Accommodation & Food	16.1	16.4	23.4	635.3	807.7	892.9	1.9	1.7	1.7	2.5	2.0	2.6	0.4	6.1	3.2
Other Service	205.1	224.7	300.7	770.0	877.9	1,048.4	24.1	22.6	22.2	26.6	25.6	28.7	1.5	5.0	3.2

both sub-classes (construction, wholesale trade and business service). OASE registered weak or negative growth in 6 major industrial groups while this occurred in 4 groups for ESE workers. Slow growth was common to the two groups in manufacturing. In several industry groups, the number of self-employed workers fell in one class and grew in the other. For example, in finance and other insurance, employment fell in ESE but grew in the OASE class. In other industries such as communication and utilities, insurance and real estate, and health and social services, employment growth was much stronger for OASE in comparison to ESE. Meanwhile, the level of OASE in agriculture, and in fishing and trapping, fell over the 1984-90 period while the ESE levels grew in these same industries. In terms of shares of industry employment, ESE rose in 9 of the 18 major divisions between 1984 and 1990 while OASE increased for 12 of the 18 divisions.

As mentioned in Section 4, paid-employment was particularly strong in the 1984-90 expansionary period and consequently, the proportion of self-employment in overall employment grew only slightly -- the ESE share grew by 45 basis points while the share of OASE grew by 11 basis points. Growth in the share of ESE was attributable almost equally to composition and incidence effects (Table 15). For OASE, all the growth was due to incidence, as the change in

the industry composition would have reduced the importance of OASE by some 11 basis points (Table 16). The agricultural industry was a major source of difference between the performance of OASE and ESE over this period. Because OASE has a higher proportion of workers in agriculture than ESE and that industry declined in importance over this period, OASE was more negatively affected than ESE. The relative strength of incidence in the OASE sub-class, along with its more widespread influence across all industries, further supports the argument that the growing importance of OASE was a systemic phenomenon in the Canadian economy in the 1980's, more so than ESE.

Let us now turn to the weak and atypical behaviour of ESE over the 1990-96 period (see Section 4B). One would like to establish the degree to which the slowdown in ESE and paid-employment is related. Again, as discussed above, it is possible that the weak growth in ESE may be due to declines in some industries where ESE is important. Moreover, the declines in these industries may not be related to the business cycle. Rather, other factors may have a greater influence (such as the depletion of fish stocks in the fishing industry). The industry analysis yields similar results as for the occupational analysis: the industry composition had almost no effect (and if so it was positive) on the share of ESE in total employment (Table 13). Looking at the behaviour of ESE and paid-employment at a detailed industrial level one finds that, at the divisional level, growth in ESE and paid-employment fell in a majority of divisions between the two periods 1984-90 and 1990-96. In absolute terms, the number of ESE workers fell in 7 of the major industries over the 1990-96 period. Among those industries that dropped in level terms, five were the same -- fishing and trapping, logging and forestry, construction, retail trade, and insurance and real estate. The share of ESE in industry employment increased in 10 of the 18 major divisions and fell in 7 of them. In the twenty-four 2-digit industries where paid-employment grew between 1990 and 1996 (and where there where ESE workers in 1990), ESE also grew in 16 of them. In the twenty-seven 2-digit SIC industries where paid-employment fell in most recent years, in 14 of them ESE also fell. Hence, in about 60 per cent of the 2-digit industries, paid-employment and self-employment went in the same direction. This proportion also applies to the change in growth trends between the two periods 1984-90 and 1990-96. In 57 per cent of the 2-digit industries, growth in paid- and self-employment went in the same direction between the two sub-periods.

Table 15
Decomposition of Change in ESE by Industry

Major SIC Industry Divisions	Share of ESE in Total Employment (%)			Percentage Point Change in Share Due to:								
				Total			Composition			Incidence		
	1984	1990	1996	84-90	90-96	84-96	84-90	90-96	84-96	84-90	90-96	84-96
Total	5.82	6.28	6.23	0.45	-0.05	0.41	0.26	0.01	0.27	0.25	-0.02	0.24
Agricultural & Related	0.57	0.55	0.54	-0.03	-0.01	-0.03	-0.13	-0.01	-0.13	0.13	0.00	0.13
Fishing & Trapping	0.05	0.09	0.08	0.03	-0.01	0.02	0.00	-0.02	-0.01	0.03	0.01	0.04
Logging & Forestry	0.05	0.06	0.05	0.01	-0.01	0.00	-0.01	0.00	-0.01	0.03	-0.01	0.01
Mining & Quarrying	0.04	0.04	0.04	-0.01	0.00	0.00	-0.01	0.00	-0.01	0.00	0.01	0.01
Manufacturing	0.50	0.47	0.50	-0.03	0.02	0.00	-0.05	-0.02	-0.08	0.03	0.05	0.09
Construction & Related	0.79	0.98	0.82	0.19	-0.15	0.03	0.16	-0.16	0.01	0.02	0.00	0.02
Transport & Storage	0.19	0.19	0.21	0.01	0.01	0.02	-0.01	0.00	-0.01	0.02	0.01	0.03
Communication & Utilities	0.03	0.03	0.04	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01
Wholesale Trade	0.38	0.46	0.44	0.07	-0.02	0.05	0.02	-0.01	0.02	0.05	-0.01	0.04
Retail Trade	1.22	1.17	1.10	-0.05	-0.07	-0.12	0.01	-0.05	-0.04	-0.06	-0.02	-0.08
Finance & Other Insurance	0.05	0.03	0.05	-0.02	0.03	0.01	0.00	0.00	0.00	-0.02	0.03	0.01
Insurance & Real Estate	0.20	0.22	0.20	0.02	-0.02	0.00	0.03	0.00	0.03	-0.01	-0.02	-0.03
Business Service	0.54	0.67	0.72	0.13	0.05	0.18	0.18	0.14	0.32	-0.04	-0.07	-0.09
Government Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Educational Service	0.02	0.02	0.03	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01
Health & Social Service	0.38	0.35	0.41	-0.03	0.06	0.03	0.03	0.03	0.06	-0.06	0.02	-0.03
Accommodation & Food	0.42	0.46	0.53	0.04	0.07	0.11	0.04	0.03	0.07	0.00	0.04	0.03
Other Service	0.38	0.50	0.48	0.12	-0.02	0.10	0.00	0.08	0.05	0.13	-0.08	0.04

Table 16
Decomposition of Growth in OASE by Industry

Major SIC Industry Divisions	Share of OASE in Total Employment (%)			Percentage Point Change in Share Due to:								
				Total			Composition			Incidence		
	1984	1990	1996	84-90	90-96	84-96	84-90	90-96	84-96	84-90	90-96	84-96
Total	7.45	7.56	9.92	0.11	2.36	2.47	-0.11	0.21	0.08	0.18	2.09	2.09
Agricultural & Related	1.82	1.45	1.48	-0.37	0.02	-0.34	-0.41	-0.01	-0.42	0.05	0.04	0.10
Fishing & Trapping	0.13	0.10	0.09	-0.03	-0.01	-0.04	0.01	-0.02	-0.02	-0.03	0.01	-0.03
Logging & Forestry	0.05	0.05	0.05	0.00	0.00	0.00	-0.01	0.00	-0.01	0.01	0.00	0.01
Mining & Quarrying	0.01	0.01	0.02	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.02
Manufacturing	0.16	0.15	0.31	-0.01	0.16	0.15	-0.02	-0.01	-0.02	0.01	0.17	0.20
Construction & Related	0.70	0.88	1.01	0.18	0.13	0.31	0.14	-0.14	0.01	0.03	0.32	0.30
Transport & Storage	0.36	0.35	0.38	-0.01	0.03	0.02	-0.02	0.00	-0.03	0.01	0.03	0.05
Communication & Utilities	0.03	0.06	0.08	0.03	0.02	0.05	0.00	0.00	0.00	0.03	0.02	0.05
Wholesale Trade	0.23	0.30	0.39	0.07	0.09	0.16	0.01	0.00	0.01	0.05	0.10	0.15
Retail Trade	1.09	0.89	1.09	-0.20	0.20	0.00	0.01	-0.04	-0.04	-0.21	0.25	0.04
Finance & Other Insurance	0.02	0.04	0.06	0.02	0.02	0.04	0.00	0.00	0.00	0.02	0.02	0.04
Insurance & Real Estate	0.17	0.32	0.50	0.15	0.18	0.33	0.02	0.00	0.02	0.11	0.19	0.28
Business Service	0.47	0.74	1.42	0.27	0.68	0.95	0.16	0.15	0.28	0.08	0.44	0.42
Government Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Educational Service	0.11	0.12	0.17	0.01	0.05	0.07	0.00	0.00	0.00	0.01	0.05	0.06
Health & Social Service	0.16	0.27	0.50	0.11	0.23	0.35	0.01	0.02	0.03	0.09	0.19	0.27
Accommodation & Food	0.14	0.12	0.17	-0.02	0.05	0.03	0.01	0.01	0.02	-0.03	0.04	0.01
Other Service	1.80	1.71	2.20	-0.09	0.49	0.40	-0.02	0.26	0.24	-0.07	0.21	0.14

The developments described in the above paragraph suggest some positive correlation between reduced growth in employment during the 1990's and the slowdown of ESE, although negative correlation was clearly present in a large number of industries. There were significant declines in ESE in the retail trade and construction industries between 1990 and 1996, both of which were negatively affected by the weak economy of the 1990's. These two industries together reduced the share of ESE in total employment by 22 basis points (some 20,000 ESE workers), all attributable to the composition effect. In some industries that have been growing rapidly, ESE has not been able to maintain its share. This is the case for example in business service where the composition effect should have increased the share of ESE in total employment by 14 basis points but a fall in incidence has limited the growth to 5 basis points. In the personal and household service industry, paid-employment grew by 25,000 whereas ESE fell by 1,600. This analysis, together with what was found in Section 4B, indicates that, although there is evidence that the business cycle and weak employment contributed to the slow growth in ESE over the 1990-96 period, other factors also had an influence. This is reflected in the diverging trends between paid-employment and ESE over recent years.

Let us now measure how the strong and atypical behaviour of OASE over the 1990-96 period (see Section 4B) related to developments in paid-employment. The decomposition results show that OASE growth was largely due to incidence over the 1990-96 period with only a small positive contribution from the industry composition effect (Table 16). The largest industry contributors to the growth in the share of OASE over the 1990-96 period are retail trade (mainly automotive vehicle retail and other retail trades), insurance and real estate, business service, health and social service (mainly day care and doctors and dentists) and other services. These five divisions accounted for about 75 per cent of the overall growth in the OASE share, of which some 73 per cent resulted from an increase in incidence.

The largest increase in the incidence of OASE occurred in industries where paid-employment fell over the period 1990-96 and, therefore, in industries where the weak economy resulted in reductions in total employment: manufacturing, construction, retail trade and, insurance and real estate. In many cyclical industries (such as in manufacturing and retail trade), OASE not only continued to grow, but the growth pace increased between the 1984-90 and 1990-96 periods and the share of OASE in total employment increased, despite negative composition effects. In

growing industries such as business service and other service (including personal and household service) where paid-employment grew since the early 1990's, OASE incidence also rose by substantial amounts. The fact is that the incidence of OASE and its share in total employment grew in essentially all 2-digit industries between 1990 and 1996. Detailed industry statistics for 1990 to 1996 shows that OASE grew in nineteen of the twenty-one 2-digit industries where paid-employment also grew (in which OASE workers were present in 1990). Meanwhile, ESE fell in ten of the twenty-six 2-digit SIC industries where paid-employment also fell (in which OASE workers were present). Hence, in about 60 per cent of the cases, at the 2-digit industry level, paid-employment and OASE went in the same direction. This proportion also applies to the change in growth trends between the two periods 1984-90 and 1990-96. In 60 per cent of the 2-digit industries, growth in paid-employment and OASE went in the same direction between the two sub-periods. These characteristics do not vary much from ESE, although, in the case where paid-employment fell between 1990 and 1996, the proportion of industries where self-employment rose was higher for OASE than for ESE (61% compared to 48%).

What can we conclude from this analysis of the industry trends between OASE and ESE? *First*, although both sub-classes of self-employment have more than half of their workers in the same 4 major industry divisions (business service, agriculture, retail trade and construction), the detailed analysis reveals important and widespread differences in the industrial composition of the two sub-classes. *Second*, although ESE grew somewhat faster than OASE during the period 1984 to 1990, the growth in OASE workers was much more widespread across industries than for ESE workers. This, along with the stronger effect of incidence for the OASE sub-class, suggests that forces driving the growth of OASE were more systemic than those driving ESE. *Third*, only a small portion of the slowdown in ESE growth over the 1990-96 period can be directly attributed to the weakening of overall employment growth in cyclical industries. The fall in the incidence of ESE had a large effect on the overall slowdown of ESE in recent years. *Fourth*, the faster growth in OASE over the 1990-96 period seems to be highly correlated (negatively) with paid-employment. However, the increase in incidence of OASE was large and widespread across industries, even growing ones, suggesting that part of this growth in OASE is not related to the business cycle (at least in an obvious way).

6. Summary and Conclusion

The main purpose of this paper was to better understand the developments in self-employment over the most recent years by examining employment trends in a longer-term perspective. We focused on the role that the business cycle may have had on these developments. This exercise has been accomplished by investigating data from Labour Force Survey annual averages by class of worker over the period 1976 to 1996 with a particular focus on detailed occupation and industry employment statistics for the period 1984 to 1996.

The major highlights of the paper can be summarized as follows:
First, growth in self-employment (working owners of business with or without paid-employees) has been remarkably steady over the period 1976-96 and, in particular, there has been no significant increase in growth in this form of employment over recent years.

Second, the decomposition of the growth in the proportion of self-employed workers in total employment between 1984 and 1996 shows that, in the aggregate, most of this growth results from an increase in the incidence of self-employment in individual occupations/industries and not from a change in the occupational/industrial composition of employment in the economy. The trends towards a knowledge-based economy have contributed to the rise in the proportion of self-employment, but these effects have been largely offset by negative contributions in more traditional occupations/activities such as farming, fishing and forestry where the proportion of self-employment is relatively large.

Third, because paid-employment is cyclical and self-employment is not, in periods of weak employment growth (such as since the early 1990's), self-employment will comprise an unsustainable proportion of the net overall increase in employment. The current recovery in employment should therefore translate into some fall in the share of self-employment in total employment.

Fourth, the detailed occupational and industrial analysis shows that self-employment growth rose in a large majority of occupations and sectors since the early 1990's and fell in only a limited number of occupations (managerial, fishing, forestry and construction) and sectors (fishing, forestry, construction, transportation and storage, and communication and utilities). The

opposite occurred in paid-employment so that, for a large number of occupations/sectors, employment trends in self- and paid-employment took diverging directions. This finding provides support to the view that, in a large number of occupations/sectors, poor opportunities in paid-employment and good opportunities in self-employment encouraged individuals to become self-employed.

Fifth, analyzing the trends in the two sub-classes of self-employment (with and without paid help), different periods should be considered. Over most of the 1976-90 period, growth in employer self-employment (ESE) had been more rapid than for own-account self-employment (OASE) while since the early 1990's, growth in OASE grew rapidly while it fell almost to zero for ESE. Hence, despite the steady growth in overall self-employment, growth trends in OASE and ESE have diverged significantly since the early 1990's.

Sixth, when we compare the effects of composition and incidence on the share of OASE and ESE to total employment from 1984 through to 1996, we see that incidence effects OASE more significantly than ESE. This higher incidence effect, along with the more widespread influence of OASE across occupations/industries, provides support to the view that the trend towards OASE, rather than ESE, has been a systemic phenomenon in the Canadian economy since the early 1980's.

Seventh, the diverging trends between ESE and OASE since the early 1990's are atypical by comparison with the previous fifteen-year period. Over the period 1976-90, the levels of OASE and ESE have shown no, or little, correlation to paid-employment at the aggregate level. Since 1990, ESE has closely tracked paid-employment (positively correlated) while OASE has performed much better (negatively correlated to paid-employment). Most of the large growth in OASE over the 1990-96 period is due to an increase in incidence whereas for the ESE sub-class, there has been a moderate fall in incidence. If anything, occupational/industrial employment composition contributed to increase the share of both sub-classes since 1990.

Eighth, our detailed occupational/industrial analysis of the most recent period suggests that the weak economy since the early 1990's contributed to the slowdown in the growth of ESE and to the pick up in OASE growth. However, it is difficult to measure this effect and therefore, it is

impossible to say with any degree of precision what proportion of these trends will reverse themselves as paid-employment recovers.

What makes the diagnosis of the current situation difficult using aggregate statistical analysis is the fact that recent employment trends have not been typical relative to history. The particularly prolonged weak level of activity in the economy (as a result of adjusting to a new monetary policy regime and fiscal retrenchment) may have given rise to these new trends in employment. Indeed, ESE workers may be growing less rapidly because the weak economy does not encourage working owners of businesses to hire paid-employees. It is also possible that, in these poor employment conditions, some of the existing ESE workers chose to lay off their employees and, as a result, became OASE. Unfortunately, we know next to nothing on the transitions between ESE and OASE. The evidence we gathered in this paper, however, suggests that other factors than the weak economy are influencing the behaviour of self-employment. For both groups of self-employment (although of a larger magnitude for the OASE workers), the recent occupational/industrial pattern of growth relative to what happened to paid-employment is consistent with the view that we are experiencing displacements from paid-employment towards self-employment. Therefore, as suggested by the OECD, not all self-employment is net job creation.[28]

Opportunities for paid-employment have been limited since the early 1990's. Industries have restructured in response to the challenges of technological changes and increasingly open and competitive markets and, as mentioned above, they have also had to adjust to a weak aggregate demand caused by major changes on the macroeconomic front. These two sets of forces have certainly encouraged firms to reduce their paid work force. At the same time however, increased competition and the development of technology have opened the door to new workplace arrangements favouring self-employment (as discussed in the introduction of Section 4). One of the most obvious manifestations of this phenomenon is the growing importance of outsourcing or contracting out.[29] It is most likely that a large proportion of workers previously working as

[28] OECD, *op.cit.* (1992)

[29] Although it is certainly happening, it is worth noting that not all outsourcing practices lead to a displacement from paid-employment to self-employment. The outsourcing activities however have often been made in industries and occupations where the incidence of self-employment is high (such as in business services). Consequently, in many instances, outsourcing has led to displacement of paid-employment by self-employment.

paid-employees have responded positively to these changes in opportunities by becoming self-employed workers.[30]

There are certainly structural reasons for the longer-term trends towards self-employment; however, it is difficult to explain why these trends have changed so much in so few years. For example, the sudden turnaround in the growth of OASE since the early 1990's must somehow be related to developments occurring in Canada since such changes did not happen in the U.S. Yet, aside from the fact that the U.S. has rebounded rapidly from the 1990-91 recession, not many diverging shocks come to mind to explain the different behaviour of self-employment between the two countries. Perhaps we are adjusting late to reforms that have led to increased competition (such as the free trade agreements), or perhaps the large increases in non-wage labour costs in the late 1980's have forced firms to meet competition by reducing their labour costs through outsourcing. Tax evasion in a period of weak growth in disposable income for wage and salary workers may have lured some individuals to self-employment.[31] These factors could potentially explain a "once and for all" adjustment in the level of OASE and should be explored in further work.

[30] This is consistent with the results of surveys showing that for most self-employed, the decision to become self-employed was voluntary. A recent survey of the literature is provided by EKOS Research Associates (1997).

[31] The GST on services, for example, may have created incentives for some service workers to become self-employed, as it is easier for self-employed service providers to avoid paying the tax.

Appendix

Decomposing Changes in the Proportion of Self-Employment

The following definitions are used:

$$s_t = \frac{S_t}{E_t}, \quad s_{i,t} = \frac{S_{i,t}}{E_{i,t}}, \quad e_{i,t} = \frac{E_{i,t}}{E_t}$$

Where "S" represents the level of self-employment; "E" employment; "i" an industry (or occupation) and "t" time. At a given point in time, "s" is the share of self-employment in total employment, "s_i" is the share of industry (occupation) self-employment in the industry (occupation) employment and "e_i" is the share of an industry (occupation) employment in total employment.

The share of self-employment in the economy can be written:

$$s_t = \sum_{i=1}^{N} s_{i,t} e_{i,t} = \sum_{i=1}^{N} \frac{S_{i,t}}{E_{i,t}} \cdot \frac{E_{i,t}}{E_t}$$

Using this manipulation, the change in the share of self-employment to total employment through time can be expressed as follows:

$$\Delta s = \sum_{i=1}^{N} s_i^0 \Delta e_i + \sum_{i=1}^{N} e_i^0 \Delta s_i + \sum_{i=1}^{N} \Delta s_i \Delta e_i$$

Where Δ is the usual time change operator (*i.e.*, $\Delta = t_1 - t_0$).

The equation essentially decomposes changes in the share of self-employment in the economy between *compositional* changes in employment between industries (occupations) -- the first term on the right hand side -- and changes in the *incidence* or intensity with which self-employment is used in industries (occupations) -- the second term --. The third term represents a second-order of magnitude cross term residual.

The same type of decomposition can be made for a specific industry (occupation). We have:

$$\Delta\left(\frac{S_i}{E}\right) = \Delta\left(s_i e_i\right) = s_i^0 \Delta e_i + e_i^0 \Delta s_i + \Delta s_i \Delta e_i$$

The industry (occupation) contribution to self-employment is decomposed into a composition effect and an incidence effect so that the change in the total share of self-employment can be expressed as the sum of the changes in individual industries (occupations):

$$\sum_{i=1}^{N} \Delta\left(\frac{S_i}{E}\right) = \sum_{i=1}^{N} \Delta\left(s_i e_i\right) = \sum_{i=1}^{N} s_i^0 \Delta e_i + \sum_{i=1}^{N} e_i^0 \Delta s_i + \sum_{i=1}^{N} \Delta s_i \Delta e_i = \Delta s$$

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